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MISCELLANEOUS DOCUMENTS

OF THE

HOUSE OF REPRESENTATIVES

FOR THE

FIRST SESSION OF THE FORTY-SEVENTH CONGRESS,

1881-82.

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47TH CONGRESS, 1st Session. } HOUSE OF REPRESENTATIVES. { MIS. DOC. No 59.

MEMORIAL ADDRESSES

ON THE

LIFE AND CHARACTER

OF

MICHAEL P. O'CONNOR

(A REPRESENTATIVE FROM SOUTH CAROLINA),

DELIVERED IN THE

HOUSE OF REPRESENTATIVES

AND IN

THE SENATE,

FORTY-SEVENTH CONGRESS, FIRST SESSION.

PUBLISHED BY ORDER OF CONGRESS.

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JOINT RESOLUTION to print certain eulogies delivered in Congress upon the late Michael P. O'Connor.

Resolved by the Senate and House of Representatives of the United States of America in Congress assembled, That there be printed of the eulogies delivered in Congress upon the late Michael P. O'Connor, a member-elect to the Forty-seventh Congress from the State of South Carolina, twelve thousand copies, of which three thousand shall be for the use of the Senate and nine thousand for the use of the House of Representatives; and the Secretary of the Treasury be, and he is hereby, directed to have printed a portrait of the said Michael P. O'Connor to accompany said eulogies; and for the purpose of engraving and printing said portrait the sum of five hundred dollars, or so much thereof as may be necessary, be, and the same is hereby, appropriated out of any moneys in the Treasury not otherwise appropriated.

Approved, March 15, 1882.

PROCEEDINGS IN THE HOUSE OF REPRESENTATIVES.

IN THE HOUSE OF REPRESENTATIVES,

December 16, 1881.

Mr. DIBBLE. Mr. Speaker, it is my melancholy duty to make to this House the announcement of the death of my predecessor, the Hon. MICHAEL P. O'CONNOR, late a member of this House from the State of South Carolina, and to present resolutions of respect to his memory. I ask that the resolutions be read, and beg leave to state that I will call them up at the proper time for further consideration and for the expression by the members of this House of the esteem in which the memory of the deceased is held.

The Clerk read as follows:

Resolved, That this House has heard with profound sorrow of the death of Hon. MICHAEL P. O'CONNOR, late a member of this House from the State of South Carolina.

Resolved, That, as a mark of respect to his memory, the officers and members of this House will wear the usual badge of mourning for thirty days.

Resolved, That a copy of these resolutions be transmitted by the Clerk of this House to the family of the deceased.

Resolved, That the Clerk be directed to communicate a copy of these resolutions to the Senate; and that, as a further mark of respect to the memory of the deceased, this House do now adjourn.

Mr. DIBBLE. I now move, out of respect to the memory of the deceased, this House do now adjourn.

The motion was agreed to; and accordingly the House adjourned.

IN THE HOUSE OF REPRESENTATIVES,

February 8, 1882.

The SPEAKER. The hour of three o'clock having arrived, the House will now proceed to consider the special order.

Mr. DIBBLE. I submit the resolutions which I send to the Clerk's desk.

The Clerk read as follows:

Resolved, That this House has heard with profound sorrow of the death of Hon. MICHAEL P. O'CONNOR, late a member of this House from the State of South Carolina.

Resolved, That, as a mark of respect to his memory, the officers and members of this House will wear the usual badge of mourning for thirty days.

Resolved, That a copy of these resolutions be transmitted by the Clerk of this House to the family of the deceased.

Resolved, That the Clerk be directed to communicate a copy of these resolutions to the Senate; and that, as a further mark of respect to the memory of the deceased, this House do now adjourn.

ADDRESSES

ON THE

DEATH OF MICHAEL P. O'CONNOR,

A REPRESENTATIVE FROM SOUTH CAROLINA.

DELIVERED IN THE HOUSE OF REPRESENTATIVES,
February 8, 1882.

Address of Mr. DIBBLE, of South Carolina.

Mr. SPEAKER: The mortal remains of our statesmen and our heroes are not gathered in a cloistered abbey, surrounded with a wealth of eulogistic epitaph; there is no favored area richer than all others as the treasury of the ashes of our illustrious dead. And so it should be. From the ranks of the people they have risen, as the servants of the people they have achieved their honors, and in the midst of the people they find their last resting-places. And as their bodies mingle with the common dust the soil of the Republic becomes more and more consecrated to patriotism and to liberty, and no pilgrimage is necessary to find a shrine; for each grave becomes a holy spot which loved ones may often visit, and where also while the aged may meditate on the transitory nature of human glory the young men of the country may be inspired with a laudable ambition to achieve a similar greatness. Such a spot is MICHAEL P. O'CONNOR'S grave. In the bosom of the soil of his native State his ashes rest in peace, but the memory of his good deeds completes the lesson interrupted by his early death. And to-day we pause in the usual work of legislation to pay the tribute of friendship and to record his many virtues.

In Beaufort, South Carolina, on the 29th day of September, 1831, MICHAEL P. O'CONNOR was born. The place of his birth was one of the garden-spots of South Carolina. It was a center of culture and refinement, and has been prolific of men who became distinguished in the annals of the State and of the Republic. The associations surrounding the youth of Mr. O'CONNOR were favorable to the development of those brilliant mental qualities which gave early promise of noble reputation, to those graceful and cultivated manners which so fitly adorned his warm and genial nature, and to those lofty sentiments of patriotism and devotion to duty which inspired his whole career in life. A liberal education at home, and at Saint John's College, at Fordham, in the State of New York, developed his natural abilities into the rounded accomplishments of cultured manhood. As the result of his devotion to the pursuit of learning we find him, a graduate at the early age of eighteen years, turning his attention to the study of the law in the city of Charleston. In those days there was no royal road by which to gain admission to the bar. Laborious and severe preparation and a long course of studious probation were exacted by South Carolina of those who aspired to the office of the advocate and the counselor. The commission of an attorney in her courts of justice was only bestowed after a rigid examination before the judges of her courts of last resort. In the year 1854, Mr. O'CONNOR, after thorough preparation, was duly admitted to the bar, and began to practice his profession at Charleston; and by his close attention to business, and his brilliant eloquence as an advocate, he marked his pathway with many successes, and established his position as an able and accomplished orator and lawyer. But it was then no ordinary period. Grave questions arose and agitated the public mind, and the time was then rapidly approaching when every day would make history. Mr. O'CONNOR entered with all the fervor of his nature into the arena of politics. We find him in 1858, at the age of

twenty-seven, a member of the State legislature from the parish of Saint Philip's and Saint Michael's, which embraced the city of Charleston. This constituency he continued to represent, with increasing popularity at home and with marked influence in the halls of legislation, until 1866. During this period, in the year 1860, one of the most eloquent of his public utterances was a ringing appeal, in the state-house at Columbia, in favor of the maintenance of the Union of the States.

After the war was over Mr. O'CONNOR, in common with the people of the South, found himself wrecked in fortune. But he had indomitable energy and brilliant talents, and he resumed, with all the alacrity of his earlier life, his professional labors. Perhaps for one of his cultivated tastes and fondness for literary as well as forensic pursuits the period of his life preceding his re-entry upon a public career was as happily spent as any portion of his days. His profession afforded an ample field for active and remunerative mental exercise. The companionship of friends of congenial tastes and sympathies gave opportunity for the enjoyment of those literary and social recreations which add such a charm to our daily life. And the quiet enjoyment of home filled the measure of content in a life so much in unison with the warm and genial nature of Mr. O'CONNOR.

But his admiring fellow-citizens refused to consent to his remaining in private life. Sometimes persons aspire to public positions of dignity; at other times the occasion suggests the man. The latter is true of MICHAEL P. O'CONNOR. He was called upon to accept the office of Representative as a matter of duty, and the patriot responded to the call. How well he fulfilled the obligations assumed by him here I shall leave to those to narrate who were associated with him as members of the House. Suffice it for me, as one of his constituents, to say we were all satisfied at home. And in evidence of this I would request to have printed here, as a

part of my remarks, a brief sketch of the action of the city council of Charleston on the occasion of his death, which occurred at his home in that city on the 26th of April, 1881:

CITY OF CHARLESTON,
Executive Department, April 26, 1881.

The regular bimonthly meeting of the city council was held at their chamber this evening. There were present Hon. William A. Courtenay, mayor; Aldermen Dingle, Roddy, Chisolm, Aichel, Webb, White, Ufferhardt, Moran, Loeb, Eckel, Thayer, Johnson, Feehan, Rose, Barkley, Sigwald, Rodgers, and Ebaugh.

The mayor, with evident emotion, said:

"Gentlemen of council, our regular meeting this evening comes to us at a time of sorrow to a large circle of family and friends, and amid a general feeling of sadness throughout our community. Our gifted and eloquent townsman, M. P. O'CONNOR, the Representative in Congress from this district, so long and so affectionately known to all of us, lies dead at his home, within sight of this council chamber.

"His hands are folded on his breast,
There is no other thought expressed
Than long disquiet merged in rest.

"I feel that we owe it alike to his personal worth and his official station that we should give expression to our feelings of sympathy and condolence at this afflicting dispensation of Providence, and before proceeding with the regular call of business I have felt that I would best conform to your own feelings by making this official announcement."

Alderman Dingle offered the following resolutions:

"His honor the mayor having announced to the city council, in council chamber assembled, the recent death, at his residence in this city, of Hon. M. P. O'CONNOR, member of Congress from the first Congressional district: Therefore,

"*Be it resolved by the city council,* That in the death of Hon. M. P. O'CONNOR the State of South Carolina has lost a true, ardent, and faithful Representative in the national councils, and the city one of its most devoted and distinguished citizens.

"*Resolved,* That the city council express herewith their sincere condolence with the family of the distinguished deceased in their great loss.

"*Resolved,* That the city council attend in a body the funeral of the deceased.

"*Resolved,* That as a mark of respect to the memory of the deceased this council do now adjourn."

Alderman Ufferhardt said:

"Mr. Mayor, in rising to second the resolutions just submitted I do so with a mournful and heavy heart. And I am sure every member of this council

shares this feeling of sorrow over a loss so unexpected and irreparable. Ay, the whole city and State feel with us the calamity of seeing cold in death one who laid down his life in the service of his people; one who, like a tried warrior wounded and worn out upon the field of battle, has not even had time to lay aside his armor, but dies just as he is brought away, although permitted to reach his home and friends. I repeat, Mr. Mayor, that I second the resolutions before you, although full of sorrow and regret."

Alderman Thayer said:

"Mr. Mayor, I also would second the preamble and resolutions, and add my humble tribute to the memory of our honored friend, fellow-citizen, and Representative.

"It was not my privilege to have been as intimately associated with Mr. O'CONNOR as had so many others, but it was mine to have known him as my friend and, realizing, to have appreciated the sincerity of his friendship. The genial, bland manner which always graced his intercourse with his fellows was no merely assumed garb, but the outer sign of the true and noble heart which dwelt within.

"As a citizen, in this presence, I need not recall how well he filled his part, ever ready as he was to give time, labor, and influence, and to spend and be spent in the interest of our city, State, and country.

"And as our Representative how fully he has earned and deserved the award of his constituency: 'Well done, good and faithful servant.' If no more, his long, earnest, and at last successful efforts in the interests of those who through wrong and mismanagement had been so despoiled of their hard-earned savings will be a proud monument to his memory, and should call forth the gratitude of the recipients of the results mainly attained through his devoted care and attention. This, as his other well-directed efforts, may be regarded as only in the line of official duty; but, sir, there was more than the simple performance of duty—there was largely involved the spirit of self-sacrifice, for as now we learn how long and severely he had been battling with the dread disease which has just terminated his valuable life, we realize and can but admire the renunciation of self despite pain and suffering he evidenced, yet to dare and do where duty called.

"But now, 'life's battle's o'er,' in that stricken home he lies—

> "In the deep silence of that dreamless state
> Of sleep, that knows no waking joys again.

"There would we tread lightly; to his sorrow-bowed loved ones extending our heartfelt sympathies in their sore bereavement, and commending them to Him who has promised to be the God of the widow and the father of the fatherless.

"Mr. Mayor, I move the adoption of the preamble and resolutions."

The resolutions were then voted unanimously, and the city council was declared adjourned.

W. N. SIMONS,
Clerk of Council.

Mr. Speaker, how transitory are worldly honors! *Vitæ summa brevis spem nos vetat inchoare longam.* The laurels of success sometimes form the garland which decks the victim for the sacrifice. Death, who "loves a shining mark," often directs his shafts at the glittering jewel which ambition presses to its breast, and aiming at the bauble, pierces a human heart. And, again, it is true, as the poet has said:

> The good die first,
> And they whose hearts are dry as summer dust
> Burn to the socket

MICHAEL P. O'CONNOR came to these legislative halls full of high and noble purposes. He felt that his duty here was to serve his constituency and his country; and he rendered the service at the expense of his life. Gifted as he was with those powers of persuasive eloquence which had captivated many an audience, he became a working, not a talking, member of the House; and in his devotion to his fellow-citizens at home there was no discrimination. His heart was large enough to embrace all classes. The welfare of the humblest negro in the log cabin of the piney-woods was the object of his careful solicitude as well as that of the merchant and the planter of means and influence; and in his career in Congress some of his most earnest efforts were for the benefit of the colored people of the South. I instance here his exertions in favor of legislation for the relief of depositors of the Freedman's Savings Bank.

Mr. Speaker, it would afford me a mournful satisfaction to speak longer of the virtues of the departed; of his high Christian character; of his identification with numerous philanthropic and charitable enterprises at home; of the lack of anything like partisan bitterness in his nature; of his statesmanlike views of public duty; of the magnetism of his nature, which captivated all those with whom he came in contact; and of his love of country and his

devotion to her interests. But I will leave these topics to others. Suffice it to say of him, in conclusion, what is better than all else, that, living in Christian faith, he died in the full confidence of a Christian's hope, awaiting the resurrection of the just.

Address of Mr. RANDALL, of Pennsylvania.

Mr. SPEAKER: Almost from the first moment of my meeting Mr. O'CONNOR I was impressed with the fact that he was one of those true men who earnestly seek to know the exact condition of affairs, and then, after becoming convinced of what duty commanded, followed with fearless courage the convictions forced upon him.

Coming here after a war which had resulted most disastrously for his State so far as those were concerned who had engaged against the power of the Union, he never stopped to repine, but with unflagging industry and unvarying courtesy did all he could to make the most of his opportunities. Indeed, sir, now looking back upon the recent past, I cannot recall any man who more sincerely accepted the results of the civil conflict, or who more earnestly endeavored to secure for his people a new future, and so to utilize their mental and material resources as to fix them again in prosperity and cordial union with their fellow-citizens of the other States.

He obtained respect and standing on his advent in the Forty-sixth Congress by refined manners and gentlemanly bearing. He modestly took the positions on committees which were assigned to him, and won the confidence and applause of his associates by the industry, care, and ability which he displayed in the discharge of the duties imposed upon him. He desired to be useful rather than ornamental, and each day the House was in session he was promptly in attendance, save when ill-health prevented, anxious only to do the best he could toward his share of the labors imposed upon the

Representatives of the people. And yet, sir, his mind was stored with learning and his fervid imagination prompted to an eloquence which shook many an audience with the storm of applause. But here, in the fierce contest of antagonistic and conflicting interests, he was wary and eager to secure for his constituents the highest success their circumstances would afford. He was staunch and faithful as a friend. His word once passed was as inviolable as faith itself. Well I knew this, and deeply I lamented his loss.

Mr. Speaker, the burdens imposed upon the Representatives of the people are numberless and the cares which accompany them most oppressive, while the reward for "days filled with labor and nights devoid of ease" is so inadequate, that public life would be without enticement if it were not for the devotion of friends like Mr. O'CONNOR. I deeply mourn his loss, for no man had a truer friend; one whose fidelity never wavered, whose heart never sank, however untoward the future might seem.

I mourn not only for a faithful friend and wise adviser, but I mourn the loss of a brave-hearted American Representative, whose ambition was not only to behold his State one of the most prosperous in the Union, but it reached higher and was nobler in that it taught to see his whole country leading the van of nations toward that civilization which crowns not the few, but elevates the masses to that comfort which comes from thriving industry, good order, and well-established justice.

His domestic life was that which becomes a gentleman. He was the head of a happy home, the proud father of a devoted family. To it his loss is irreparable. But to his children the inheritance of an unstained name and the record of an honorable public service are better than gold and brighter than diamonds. In these memorial services I could not say less, but my heart has feelings for our dead associate which words are powerless to express. An honest man, a staunch friend, a true, brave-hearted patriot, has gone.

Address of Mr. BOWMAN, of Massachusetts.

Mr. SPEAKER: I am glad to join with my fellow-members in offering my tribute of respect to the memory of him in whose honor these services are held to-day. When one has deserved well of his country; has honestly and faithfully worked for its interest; has laboriously and conscientiously performed the duties of his office as a member of Congress, it is fitting that we should turn aside for at least a few moments from the duties of the hour and place on perpetual record our testimonials of respect, affection, and esteem. It is the last service which we can render for him; it is a service which our deceased friend well merited, so that we can perform it not as a mere matter of custom or form of duty, but because his pleasant and genial disposition, his kindness of heart, his integrity of character, and his industry and faithfulness in the discharge of duty, rendered it for him a just due, and for us a consolation and sad pleasure that we can honestly bestow it.

Mr. O'CONNOR and I came to the last Congress as new members, and it may perhaps be considered as our misfortune that we were assigned to the laborious and somewhat thankless duties of the Committee on Claims. Coming from widely separated sections of the country, strangers to each other, and of different political faiths, it might seem as if we had no thoughts or interests in common; but a few weeks had hardly passed before a friendly intimacy grew up between us which continued until his death, and which I shall always cherish as among the pleasant recollections of my Congressional life.

I do not think that one could come into close contact with Mr. O'CONNOR without finding his respect for him rapidly grow into affection. Although he was firm and decided in his views, he had respect for the opinions of others, however widely different from

his own. He never allowed opinions to blossom out and mature into bigotry. His judgment of what was right never ran into the narrow ruts of intolerance, and the sharpest political controversy or the widest differences of opinion never caused in him bitterness of feeling or personal animosities. I doubt if our friend could under any circumstances have been a good hater; he was too kind in heart and gentle in disposition. After all it is perhaps the highest praise which you can bestow upon a man to say he is a gentleman, not in the modern and corrupted meaning of the word, which by usage has seemed to apply only to wealth, position, appearance, manners, or other external qualities, but in the original and higher meaning, that one is a gentleman; one who, however strong and firm and unyielding and brave in the cause of right and principle, yet has that gentleness of manner and kindness of heart which always has regard to the opinions and feelings and desires and comfort of others. Such a gentleman in the highest and best and truest sense of the word our brother member was. He disliked to do a harsh thing; he hated to say a harsh word, and always he would rather say good of a man than evil.

He preferred to apologize for and excuse the faults or foibles of others, rather than to enlarge upon them. What impressed me most in my intercourse with him was his unfailing good nature, his geniality of disposition, his kindness in word and act. His impulsiveness did not cover petulance, nor his earnestness degenerate into anger or impatience, and when in the latter days of the last Congress his failing health kept him away from many of the meetings of the committee, I am sure there could have been none whose pleasant face and pleasant words would have been more missed.

But his kindness of disposition did not degenerate into weakness, and his pleasant manners were no proof of a soft and feeble nature. There was in him a sturdiness of character and a force and power of manhood which would prevent him from improperly yielding in

those things wherever his amiability and desire to please might tempt him to give way. I am sure that he always tried to do the right thing, that he meant to do what was just and fair and honest, and that if he had once found out what he deemed to be the right path, neither the desire to please friend nor to punish foe would swerve him from it. I always had great respect for his plain and steady honesty of purpose, and however much I differed from him (and we did differ widely on many subjects), I always and justly gave him credit for sincerity and a desire to be right and to do right. I could not sympathize with some of his views, yet I respected them and knew that he held them honestly and sincerely, and it is always easy to "agree to disagree" without any interruption to the warmest friendship where one has respect for the motives and feelings of the one from whom he differs.

The duties of the Committee on Claims are not particularly pleasant. They call for quiet, hard, and unobtrusive work, which the public care little for and which does not attract public notice or lift the worker up before the public gaze. About the only reward it can bring to the member is the consciousness of performing necessary duties well and honestly, and it does not blossom out into fame nor make his name known to the people, as important work on what may be called a public committee frequently does. Yet the duties thus imposed upon him our friend assumed with as much industry, zealousness, and perseverance as if he was by their performance treading the pathway to fame or other personal reward. He was a good lawyer, and (what is by no means synonymous) had good common sense and a wise judgment. The mere letter of the law could not with him be allowed to destroy equity and justice, nor on the other hand could his instincts of benevolence and the perhaps pitiable cases of suffering which might be brought to his notice induce him to forget what was right toward the government, or to be false to his duties as a member of Congress and one of the guard-

ians of the interests of his country. In presenting the cases committed to his charge, either in committee or in the House, by written report or by speech, he was compact, forcible, logical, and at times eloquent. He understood the principles underlying the cases, and was forcible in presenting them. His report, as a member of the Committee on Civil Service Reform of the last Congress, upon the question of the reference of all private claims before Congress to the Court of Claims, was a thorough and forcible presentation of that subject. He did good work and hard work in committee and House, and was an active, industrious, and conscientious legislator.

For his family we have sympathy; for ourselves, the pleasant memories of him who was with us during the many months of the last Congress; for him, congratulations. For surely it is well with a man, and is the best, if somewhere in the hereafter he can feel that all life's troubles and toils and sufferings are over and he is safe beyond their reach and has earned his rest, and that he has gone from life to death, or rather perhaps from death unto life, with the respect of those who knew him and by them sincerely mourned.

Address of Mr. MAGINNIS, of Montana.

Mr. SPEAKER: Among all the friends whom I have met upon this floor, behind whose disappearing forms have closed the iron gates of death, I cherish with particular affection the memory of M. P. O'CONNOR. His frank and generous nature, his cordial, kindly ways, his unfailing courtesy, won all who came close to him. There was between us also that community of sentiment which comes of a common sympathy with the sorrows and the aspirations of the race from which we both have sprung. Indeed, I first became intimate with Mr. O'CONNOR at the time when the starving people of Ireland were stretching in piteous appeal their wasted hands

across the rolling waves and asking the generous people of this happy land to save them from death and despair, produced by long years of misgovernment and oppression. We both were members of the committee of reception appointed under the resolution which gave Mr. Parnell the use of this Hall, in order that he might tell the Representatives of the American people of the miseries of his native land, and explain the methods of reform for which he was pleading.

Later, I was present at a banquet over which Mr. O'CONNOR presided. I shall never forget the eloquent speech in which he responded to the first toast, or the ready, graceful, appropriate way in which he called out and introduced subsequent speakers. I never met a more charming or eloquent host. I was, of course, deeply interested. Coming from a new land, among whose lowering mountains and wide-stretching valleys there is room for untold millions of people; living under a government that takes infinite pains to protect the claim of the humblest settler, and to measure and define and patent to any settler a farm and a home who lives upon it for five years, I could scarcely comprehend the fact that in another land, homes that had been occupied, and little farms that had been tilled, for generation after generation, might be lost to those born and reared upon them through the misfortunes of an adverse season or the failure of a single crop or the unjust exactions of an avaricious landlord. And I heartily sympathized with the devoted young member of Parliament whom we entertained; a gentleman who is the leader of his people; who, under a free government, would be the premier of his country, but who is now in jail under an arbitrary and despotic act which requires no charge and permits of no trial.

As a member of this House Mr. O'CONNOR was devoted to any duty that was assigned to him. I never knew a member more anxious to serve his constituents. It was painfully evident during

the closing days of the last Congress that his health was in a most precarious condition, but he remained at his desk day after day and endeavored to accomplish the work that was pressing upon him. When the Congress dissolved he sought his home in the South, confident that the balmy air of his own beautiful city by the sea would restore his vigor and health again. I parted from him in the hope of receiving his kindly grasp and meeting his genial smile on my return. I was far away in the interior of the continent when I accidentally heard the news of his death. I was shocked and grieved beyond expression, and the pain of it has never left me. I can only give it expression in this inadequate tribute of my regard for the memory of a kind friend, an honest and an able man.

Address of Mr. LINDSEY, of Maine.

Mr. SPEAKER: My acquaintance with Mr. O'CONNOR was short, commencing with his entry into the Forty-sixth Congress; yet it happened we were thrown much together in committee, and I learned to know him there well. My brief acquaintance does not warrant me in speaking, as others have fitly done, of loss sustained by family relatives and locality, or of the excellence he exhibited in the relation of husband, father, friend, and citizen; but I must content myself in saying only a word as I knew him here. In the Forty-sixth Congress Mr. O'CONNOR was assigned to the Committee on Claims, where I may say he was respected and appreciated by all his associates. In that committee he knew no party, no section, no man. He examined the matters committed to him for the cause alone, and determined them upon what he regarded as sound and well-settled principles of law. I am sure all his associates will bear cheerful witness to his earnest effort to do his full

duty in a committee overwhelmed with business of a kind that attracts but little public attention and finds small favor in this House. To what position he might have attained with larger service and more conspicuous place it is now useless to speculate. His service here is completed. The work committed to him to do was faithfully done. And it is but fact to say that those who knew him best respected him most.

Address of Mr. BELTZHOOVER, of Pennsylvania.

Mr. SPEAKER: It is an immemorial and universal custom among men to honor the memories of their departed friends. This sacred usage springs from the purest emotions of the soul, and goes forth in a thousand various forms to elevate and beautify all that was great and good in the dead, and to extenuate and conceal all that was frail and bad. The method of expressing this sentiment of respect for their dead is an index of the civilization of nations, extending from the rude symbolic ceremonies and mound-burials of the savage to the elegant and eloquent eulogies which embalm the memories of the departed in the literature and song of the most cultured peoples. The history of all the efforts of mankind on this subject unerringly teach, however, that there is no earthly immortality for the dead except in the imperishable keeping of written language. The marble pillars set up by Sesostris to mark his conquests have dissolved into dust. The great tumulus over the heroes on the plain of Marathon is almost gone. The stone lion at the pass of Thermopylæ and the statues and emblems which were intended to perpetuate the names of the mighty men of the past have all perished amid the indistinguishable wrecks of mortality. The tombs of Abraham and Æneas and of Moses and Romulus are with those of the mighty host of sleeping demi-gods which are marked on the world's great battle-

fields with the humblest and meekest—*unknown!* The highest and most enduring tribute, therefore, which we can pay to a dead friend is in the earnest, fervent words of praise with which we commit the record of his character and virtues to the unyielding embrace of history. Impressed and influenced by this belief, I earnestly and affectionately join with those who desire to express their respect and admiration for the life and services of one who was lately a distinguished member of this body. Hon. MICHAEL P. O'CONNOR was born on the 29th day of September, 1831, at Beaufort, South Carolina, and died at Charleston, in that State, on the 26th day of April, 1881. He was a man of strong intellectual power, of liberal education, an able lawyer, a skillful debater, an industrious and efficient legislator, an affectionate husband and parent, and a courteous gentleman. He had a fine personal appearance, a strong, compact frame, a large, well-formed, brainy head, and a scholarly face.

He was a hard student from his youth to his grave. He was educated at Saint John's College, situated at Fordham, now a part of New York City, which, from the character of its organization, its location, surroundings, and numerous and varied facilities, is one of the very best educational institutions in the country. Its founder and head was the venerable Archbishop Hughes, and its president during Mr. O'CONNOR'S attendance was the distinguished Cardinal McCloskey. With a complete literary equipment, he entered the legal profession at Charleston, which has one of the best and ablest bars in the State. He was elected to the legislature of South Carolina for seven consecutive years. He was a member of the Forty-sixth Congress, and served his full term. He was re-elected to the Forty-seventh Congress, but died during the interval between the adjournment of the last and the meeting of the present session. In the Forty-sixth Congress he served on the Committees on Claims, Civil Service Reform, and Labor. Neither

of these committees and the work assigned to them afford any considerable opportunities for forensic display or the development of the peculiar qualities of statesmanship. Neither of them furnished a theater for the exhibition of the abilities and experience of Mr. O'CONNOR. But he wrought faithfully where fortune placed him, and it is not unfair to any member of the Committee on Claims to say that no one on that committee surpassed him in the industry and ability and success with which he performed his duties on that his chief committee.

I remember well his report and argument on the bill for the relief of L. Madison Day. This claim rested on an apparently equitable ground, and involved the discussion of some interesting questions of constitutional and statute law. But, in addition to other objections, there was an insuperable, although by no means patent, technical and legal barrier in the way of the claim. Mr. O'CONNOR'S report accompanying the bill was lengthy and able, and came as near making a feeble appear to be a faultless case as rare tact and ingenuity and legal acumen could do. When the bill came up for final passage in the House he made a strong and effective speech in its favor, still further refining the discriminations by which he ingeniously labored to reason away and break the force of the decisions against the legality of the claim. The tide was clearly in favor of the bill. A number of lawyers who saw the weakness of the case and the obstacles in its way interrupted him, myself among the number, briefly suggesting the grounds of difficulty. At this critical period of the debate one of the most skillful and ready men of the House, Mr. Hammond, of Georgia, entered the discussion, and by a short and incisive argument turned the current against the bill. Mr. O'CONNOR promptly obtained an adjournment, and when the discussion was renewed on the following day he came fresh to the contest, and, fighting gallantly, was only beaten by one or two votes.

If I had seen him manage a hundred legal battles I could perhaps have had a better idea of the extent of his versatility and resources, but I could not have been more convinced of his marked force and adroitness as a lawyer and of his tact and readiness as a debater and parliamentarian. One of the most learned and eloquent men of the last generation declared that he could tell from hearing any man talk fifteen minutes whether he had a classical education. So it seems to me that any person with reasonable powers of discrimination could not listen to Mr. O'CONNOR during the progress of even a brief debate without being deeply impressed with the elegance and force of his language and the cogency of his argument. The career of a new member of Congress can only be judged of in this way. He has few opportunities, and for these he waits like a soldier for battle. He must seize the current when it serves, and if he brings to the only occasion presented in his whole term all the ability and skill which a master of the subject could be expected to command, he deserves more praise than he who monopolizes the Record with daily lucubrations. Mr. O'CONNOR was occasionally called to the chair by the Speaker during the Forty-sixth Congress, and always presided with dignity and ability. He was an attentive, industrious, and useful member of the House. He was always at his committees during their sittings and in the House during its sessions. He was a gentleman of rare courtesy and politeness in his intercourse with his fellow-members and with all men. He was devoted to his family, and spoke of them often with the greatest pride and deepest affection, and they reciprocated his love by being fondly attached to him.

With a strong mind, a liberal literary and legal culture, an extensive experience and practice at the bar, a long service in the legislature of his State, and an honorable record of service for a full term in this the highest legislative body in the world, thoroughly armed and prepared, he had just stepped out into the grand arena

of a bright career in the public service of the nation. But in the prime of his manhood and in the noonday of his hope and ambition he was suddenly summoned to the gloomy shades of the unseen world. I well remember meeting him in the chamber in the rear of the Hall of the House on one of the last days of last session. He spoke a few words in reference to the contest for his seat, which was then pending before the Election Committee. He then grasped my hand in his cordial manner to bid me good-by, and said: "My friend, I am not well; I must go home and rest." He went home, and rested there in that long, unbroken sleep which knows no waking. The beautiful country and balmy sunshine and quiet home could not stay the inflexible purpose of an unpropitious destiny. The great common law of human hope and human ambition, which is symbolized by the broken column and unfinished work, was rigidly followed and enforced, and he was cut down in obedience to its inexorable decree. There are a few favorites of this mysterious and revengeful Nemesis, whose names stand out at long intervals on the highway of history, who seem to have lived out the purpose of existence in seeing the fulfillment and enjoying the fruition of a life's work of sacrifice and toil and endeavor. But these exceptions only serve to justify humanity in its mutinous mutterings of rebellion against the common lot. The great and innumerable hosts which struggle on the upward road to fame are lost amid its inhospitable crags and treacherous steeps.

The greatest and proudest queen that ever swayed a scepter on the earth, after she had exhausted all the resources of power, and there was no other way to illustrate her glory and grandeur, commanded a great and gorgeous palace of ice to be built in her cold northern home. With vast expense and skill and toil the mighty structure was reared, with its lofty columns and spacious halls and numerous chambers—an imposing and marvelous creation of human power and restless ambition. Within it the royal court assembled

as in a palace radiant with measureless myriads of diamonds. No other queen ever held her high estate in so rare and so brilliant an abode. But the hot and certain summer came and breathed upon it, and the cold and glittering and wondrous pile, with all its grandeur, dissolved like a vision of beauty, and left not a wreck behind. There is no fitter picture of the visionary structures which fill the vain and dreamy realm of human ambition; but it is the old, old story which reiteration has made stale and unprofitable.

And yet ambition, luring its infatuated followers to disappointment and death, will ever remain the strongest incentive to human endeavor. It is the mainspring of all the greatest efforts of human heroism; it is the hopeless but determined and God-like reaching out of the human soul after the Infinite, of which it is a fragment and with which it struggles onward and ever to unite again. With Thomas Carlyle:

> It is not to taste things sweet, but to do noble and true things and vindicate himself under God's heavens a God-made man, that the poorest son of Adam dimly longs. Show him the way of doing that, the dullest day-drudge kindles into a hero. They wrong man greatly who say he is to be seduced by ease. Difficulty, abnegation, martyrdom, death, are the allurements that act on the heart of man. Kindle the inner, genial life of him, you have a flame that burns up all lower considerations.

This was the ambition which did not "tire with toil nor cloy with power," which inspired and animated our dead friend in the battle of life. He had a right to be ambitious. He had it by inheritance from a race of the bravest and best among the sons of men. He bore a name which is linked with some of the purest triumphs of genius and liberty. He was born and reared in a State whose normal condition was revolution, and on the altars of whose household gods there burned the undying fires of an all-consuming ambition. He bore the escutcheon of that grand old historic State whose chiefest glory in history will be that she was the mother not only of great but of ambitious men. He maintained her fair fame unsullied amid the sneers and shafts of spite and

revenge and contumely which mock her fallen fortunes and desolated fields, and sleeps now with her honored dead in her own proud and sunny clime.

On his flower-entwined tomb let there be written that his ambition was to nobly do the work of life; to faithfully serve his country and his friends; to act well his part; to struggle ever

> With an earnest soul,
> For some great end from this low world afar;
> And still upward travel though he miss the goal
> And stray—but toward a star.

Address of Mr. ELLIS. of Louisiana.

Mr. SPEAKER: I had thought that silence would best attest the affectionate remembrance in which I hold the honored dead, whose memory consecrates this hour; but the wishes of his friends, seconded by the strong demands of my own heart, prompt me to ask the brief indulgence of the House while I pay to his great worth a feeble tribute.

That was a sad spring day to me, that April day of last year, in the soft light of which I read the fateful dispatch that told me that the great and good heart of MICHAEL PATRICK O'CONNOR had grown cold and still forever. It is true, sir, that I had not known him very long, but yet long enough to know him well and to have learned to admire him as one of the manliest, gentlest men I had ever met—long enough to have learned to love one of the noblest and most generous hearts that ever moved the currents of a human life.

I formed his acquaintance when he came here to take his place in the Forty-sixth Congress, in December, 1879, but I was familiar with his name and reputation before I ever grasped his hand; for he had won name and fame in his own State and among his own people, and was beloved and honored by them; and his State and

people had in all of their history been accustomed to look with undazzled and unexaggerated gaze upon great and shining men. Their annals are emblazoned with the names and deeds of their Rutledges and Pinckneys, their McDuffies and Calhouns and Haynes and Rhetts and Thornwells. Their standard of mental culture and intellectual endowment and manly courage and self-reliance is lofty, and it was no small achievement to have pressed to the front rank as a leader of such a people. But the fame of Mr. O'CONNOR, passing the boundaries of South Carolina, had become national; for in a supreme moment in the councils of his party at one of its great national conventions, with the force and fire of a born leader, he had thrown himself into the torrent of a stormy debate that was surging and swollen with the impassioned thought of some of the foremost minds of the Union, and had successfully stemmed and calmed and controlled it. And the fame of the logical brain and the music-laden tongue of O'CONNOR had gone to all the States and people of the Republic. And so I was prepared beforehand to admire and respect him for his high intellectual endowments; but when I met him face to face there was a something in the warm clasp of his hand, in the bright, frank soul that looked from his open, honest eye, that said to me "Let us be friends"; and so we were almost from the outset of our acquaintance. And that friendship soon ripened into that intimate confidence that is so delightful to congenial spirits, in the sacredness of which men lay bare their souls and their hearts to each other. And it grew all the stronger and sweeter during his life; but, alas! it remains but a sacred and beautiful memory to me now.

And now, sir, divesting myself as completely as I am able of that partiality with which affection looks upon the memory of a departed friend, let me as briefly as I can give to history my estimate and analysis of the character of him whose memory consecrates this hour.

The warm, rich blood of Ireland, whether at its fountain-head or flowing out to commingle with the life-currents of other peoples, has in all history made men to stir with kindling speech, to thrill with ecstatic song, to entrance with rapturous music, to die with superb daring, to champion the cause of the oppressed with sublime devotion, to live in truth to their loves and in faith to their friendships, and to wear a sun-smile in their souls that carried light and warmth and wit and cheer to every scene upon which it beams. And this was the blood from which O'CONNOR was sprung, and aptly did he illustrate the noblest traits of the Irish race. In nature and disposition he was impulsive, generous, and affectionate. The coldness of calculating selfishness was all foreign to his soul. He was not a man of policy, substituting tact and craft for courage and directness and strength. Nor did his affection for friends find its origin in conscious weakness and dependence. It was rather the impulse of a heart as gentle as it was brave, as noble and charitable as it was fearless and true. His bearing among men was a most admirable commingling of manly dignity, unassuming modesty, and knightly courtesy, while the kindly smile, which was indeed the sunshine from his soul, and the frank, cordial manner of his address carried a mesmeric influence to all with whom he came in contact, and won for him the friendship and confidence of all who knew him.

There was one beautiful trait in his character that impressed me. It was his broad-minded charity for the opinions, the faults, and the foibles of men. I have passed many hours with him in the fullest interchange of confidential thought, and I never heard him speak uncharitably of any man. If he had no word of commendation he was silent. He endeavored to trace a good and pure motive in the speeches and actions of all men, and believed that men could differ widely from his views and opinions and still be as honest and sincere as he realized himself to be.

Mr. O'CONNOR was a born orator. His speech was ready and his soul was full of the true spirit of poetry; and the beautiful in art and nature found in him a devout and constant worshiper. And so he clothed his strongest thought in the drapery of chaste language and poetic imagery. He could not believe that the column was less strong because it was polished and carved and sculptured, nor that the oak tree had less of power to defy the storm because of the green glory of its garb or the graceful vine that enwreathed it with fern and flower. Conscious of great gift of speech, he was free from the vanity that seeks ever to parade its excellences in public. The born orator hesitates to speak too often. Conscious of his power, with the loftiest conceptions of true oratory, with a morbid dread lest he fail to realize his ideal, feeling that the failure of genius involves a fall the terrors of which mediocrity can never know, because it never dared, the conscious orator sits oftentimes silent, while others without gift, save of assurance and perseverance, fill senate halls with discordant clamor. And thus it often happens that

The shallows murmur while the deeps are dumb.

Mr. O'CONNOR'S voice was rich and clear and musical; his enunciation was distinct and perfect; his manner and gesture were emphatic and impressive, and polished sentences full freighted with precious thought and clad with brilliant trope and glowing metaphor—like Jove-commissioned heralds from Olympian portals—leapt from his laboring lips.

As a Representative he was careful, faithful, and painstaking. He was assiduous in looking after every interest of his people and scrupulous in attending to the most trifling wish of his humblest constituent. A most notable instance of his devotion to the rights of the poorer and humbler classes of his constituency were his labors, not alone in behalf of the colored people of his own district, but those of the entire South, in endeavoring to induce the government to pay in full the losses sustained by the freedmen in the

failure of the Freedman's Savings and Trust Company. In that good work I was his co-laborer, and the brief which we filed before the Ways and Means Committee, to which the bill was referred, was prepared by us jointly. I prepared the statement of facts and O'CONNOR wrote the argument upon the legal questions involved. And that argument, upon a novel and original proposition, involving the question of the peculiar relations sustained by the government to the freedmen of the South during the period that elapsed between their manumission and their enfranchisement, and the obligation of the government arising from that relation, was one of singular power, clearness, and cogency, and of itself enough to rank Mr. O'CONNOR as one of the foremost lawyers of the country.

His patriotism was intense. With all the fervor of his great heart did he love his native State. The misfortunes and calamities that befell South Carolina from 1861 to 1876 seemed to endear her and her people all the more to his faithful soul. Again and again has he recited to me the Iliad of her woes, and with more than tenderness of speech and voice discovered to me a pathetic and clinging devotion to her fortunes that prosperity and power and victory would never have commanded, and then he would quote these exquisite words of the gifted orator and poet-priest, the laureate of the South:

> A land without ruins is a land without memories; a land without memories is a land without history. A land that wears a laurel crown may be fair to see; but twine a few sad cypress leaves around the brow of any land, and be that land barren, beautiless, and bleak, it becomes lovely in its consecrated coronet of sorrow, and it wins the sympathy of the heart and of history. Crowns of roses fade, crowns of thorns endure. Calvaries and crucifixes take the deepest hold on humanity. The triumphs of might are transient—they pass and are forgotten; the sufferings of right are graven deepest on the chronicle of nations.

As a statesman he was broad, liberal, and progressive. His soul had no patience with that kind of statesmanship which insists upon holding an endless wake over dead issues—which, like Lot's wife, is

turning forever to look back at the smouldering ashes of dead ideas that were consumed in the fierce fires of civil war. He believed that the "dead past should bury its dead"; he favored a strong and progressive American policy; he longed to see the magic wand of material development touch the land of the South; he was an enthusiastic friend of all measures that looked to the restoration of the merchant marine of this country and the tearing from the mast-head of the grasping monopolist of the world's commerce the proud title of "Mistress of the Sea," and nailing it just under where the flag of our country is floating, and the giving again the glory of that flag to all the winds and isles and stars of the sea. He had no patience with that kind of statesmanship which is the child of cheap demagogy and stupid unprogressiveness, and whose creed and code are summed up in the two words, "I object."

But last and best of all, Mr. O'CONNOR was a pure, sincere, and devout Christian. He made no noisy protestation of his faith, nor sought to intrude his opinions upon others; but he boldly proclaimed the name of the Nazarene, and his daily walk and speech attested the belief of his heart; and in this was he an example to all of us.

I know my own weakness, and how far short I fall of my own duty, nor do I dare stand here to admonish others; but professing my undying faith in the divinity of our holy religion, I do say that in the day when unbelief, unable to promise us other light than the feeble ray of reason, asks the world to blot from its sky the star of Bethlehem—that star which was the guide and the sign to our ancestors when they planted the tree of liberty here and watered it with their blood and tears; the star that pours its lucent beams upon the pathway of our fathers and mothers to guide their tottering footsteps, and upon which their beautiful old eyes gaze in contented joy as it beacons them homeward to perfect rest; that star which lent its glory to our marriage vows and cast a halo about our

children's heads as they were anointed at the baptismal fount, and dissipated the gloom and the sorrow from the graves of our dead—it would be better if more of our strong men, of our public men, would, like my lamented friend, manifest their faith by their works, and live their religion in their lives, and boldly avow as he did their undying faith in that only name whereby men can be saved. For the bravest and the strongest of us at last are but as dust and weakness, and tottering along beneath our heavy burdens,

> Our dim eyes ask a beacon and our weary feet a guide,
> And our souls, of all life's mysteries, seek the meaning and the key;
> Lo! a cross gleams o'er our pathway—on it hangs the crucified—
> And He answers all our yearnings by the whisper, "Follow me!"

O'CONNOR heard, obeyed, and followed, and found peace here; and my heart's faith tells me he has found perfect peace where he has gone—beyond the shadowy river.

Address of Mr. ROBINSON, of New York.

Mr. SPEAKER: I feel that after the eloquent address we have just listened to from the lips of the gentleman from Louisiana, I should perhaps be silent. But duty compels me to say a word or two.

Death is no respecter of persons. He is a "black camel that kneels at the gates of all." He beats with impartial knockings at the cabins of the poor and palaces of kings. He crosses with equal footstep the threshold of the peasant and the statesman, and hangs his crape upon every door without regard to rank or sex or age.

To-day we pause in our pursuit of the shadows of which our lives are made up to pay a tribute of respect to him whose voice was music and whose smile was light, which we shall see and hear no more. I have asked permission, as we bow our head in sorrow, to mingle my voice for a moment in the chorus of those who sing his praise.

It seems but yesterday since I met him here, in the closing days of the last session, and he looked forward to this Congress for pleasant intercourse with those who were easily taught to love him, but he went home to die, amid the friends he loved and in the State he loved and served, and left us and the people of our whole country to deplore his loss.

Fifty years ago Mr. O'CONNOR was born in South Carolina. That grand old Commonwealth has given birth to many of our most illustrious statesmen. No province in the country gave nobler names to the cause of liberty than the Lynches, Pinckneys, and Rutledges; and no State contributed to the Senate, in later times, two such intellectual giants as John C. Calhoun and William C. Preston, and amid the stars that burn brightest in the glory of our firmament South Carolina points with pride to her Butlers, Gadsdens, Hamptons, Haynes, Hugers, Legarés, Lowndeses, McDuffies, Middletons, Pickenses, and Sumters. It was Mr. O'CONNOR'S pride and honor to have called such a glorious State his mother, and her sons his brothers, of whom he was not unworthy. New York claims the privilege also of calling him her son. One of her best colleges is his *Alma Mater*, from which he graduated at the age of eighteen, and returning to his native State was admitted to practice law at twenty-three. He had not been long at the Charleston bar till he began to show evidences of a genius worthy of his elder brethren. Nor was his fame confined to the precincts of his native State. Long before he came to Congress flashes of his eloquence shot up from his Southern home in rivalry of Northern lights, and in many circles of Northern States his fame was as fondly cherished as among the brilliant society of the sunny South.

Had his life been spared he would have made an enviable record here; but the hand of death was on his heart and the silence of the grave is on his eloquent lips.

A loving wife mourns his double loss to herself and to their sor-

rowing children. But his country to-day, by her Representatives from all the States, takes pride in recounting his virtues and perpetuating their memory. Northern praise and Southern song mingle in mournful harmony over his loss. I have listened with pride to the voices of his eulogists here to-day. Pennsylvania, Massachusetts, Montana, Maine, and Louisiana have mingled their eloquent and merited praises with the fit and feeling tributes from his own State with which these ceremonies have been opened and will close.

Comfort for the mourning widow and consolation for his bereaved family we offer here to-day from sympathizing hearts. We cannot dry the tears from their eyes, nor would we if we could; but the kindly words sincerely offered will shine through them and picture on the sky their future—a rainbow of hope and promise—for many a brightening day.

The sorrow that broods over his bereaved family day after day, that has enshrouded their hearts since his death and will continue to fling its shadow over their brightest hours, broadens and deepens to-day into national sympathy. The extremes of our grand Republic, Maine and Louisiana, Massachusetts and Montana, come with flowers culled from cultivated gradens and mountain wilds. South Carolina has covered his funeral bier with Southern garlands redolent of richest perfume. I beg leave to fling upon that bier as it passes a single rose-bud, bedewed with tears of sympathy and breathing fragrance from the home of his fathers. I sincerely mourn with his warmest friends his too early death; but he lived long enough to secure the bays with which South Carolina decks the heads of her children.

> Nor shall that laurel ever fade with years
> Whose leaves are watered with a Nation's tears.

Address of Mr. EVINS, of South Carolina.

Mr. SPEAKER: To those of us who believe that—

> 'T is not the whole of life to live,
> Nor all of death to die,

such an occasion as this brings with it sober thought and serious reflection. The sentiment which demands this solemn pause amid the cares and duties which press upon us is a holy one, and springing as it does from our higher and better nature, we do well to give it heed. Under its soft and gentle influence our thoughts are lifted out of their selfish grooves into a purer atmosphere, where the voice of passion and party is never heard, and where the affections are supreme. This sacred hour, with its elevating and ennobling influences, is not without its benefits to the living, while it is consecrated to the dead. In this dark world of ours there is no richer gem than sorrow's diadem—a tear.

Among the thoughts which crowd upon me at this moment, Mr. Speaker, the saddest is that which tells of the large number of seats made vacant by the "insatiate archer" since my entrance into this Hall as a member of the Forty-fifth Congress. How frequently, sir, during these brief years has the sound of the gavel upon your desk been muffled, and the noisy strife upon this floor been hushed by the funeral bell which told of the breaches made in our ranks. Another has been added to this long list, and to-day our thoughts are turned to a green grave on our Southern coast, upon which the flowers of spring and summer have bloomed and died; a grave which holds all that is mortal of MICHAEL P. O'CONNOR, a member of the last and a member-elect to the present Congress. What name is there upon that death-roll more worthy to be hallowed by those gifted with the eloquence of speech? Whose noble and generous qualities of heart better deserve the tribute of a tear? One

who sat upon the other side of this Chamber when I entered it fell by the hand of an assassin after he had reached the highest goal of earthly ambition; and a sorrowing nation stood uncovered around his bier while the civilized world did him homage. Others still, upon that list, filled a larger space in the history of their country; but if those are esteemed most worthy of honor who have discharged with the greatest fidelity the high trusts committed to them as representatives of the people and the duties incumbent upon them as private citizens, then the name of my lamented friend and former colleague will suffer no eclipse in the galaxy where death has placed it.

His presence and bearing gave instant assurance of the possession, on his part, of those qualities of mind and disposition which always attract. His bright and open face, unmarred by those malign passions which so often disfigure with their lines and furrows nature's fair handiwork, gave him an unfailing passport to the good opinion and friendly courtesies of the stranger; while no one ever met the cordial grasp of his hand without feeling that the heart which pulsated through it was filled with every kindly emotion. His ardent nature made him an enthusiast in whatever he undertook. He never did anything in a half-hearted way. With all the zeal and devotion of a true knight-errant he pursued the right as he understood it; yet with a generous courtesy, in which there was not a tinge of arrogance, he was ever ready to receive the counsel and advice of those who differed with him on questions of importance touching private interests or the public weal.

Without fortune or family influence, he achieved success by faithful work and honest endeavor. In a short time after entering upon the practice of his profession, his fine power of speech and his ability to stir the hearts of men began to be appreciated by the public, and very soon he became a distinguished advocate at the Charleston bar, noted for its learning and eloquence, and at the

head of which then stood the erudite scholar and peerless lawyer, James L. Petigru.

Mr. O'CONNOR's long service in the legislature of his State, extending through a series of years, from 1858 to 1866, greatly increased his reputation. During this memorable period in the history of South Carolina the gravest questions which ever agitated the minds and hearts of her citizens were discussed and acted upon. In these exciting debates he bore a conspicuous part, finding in them the best themes for his impassioned oratory. Always conservative, perhaps the ablest speeches he ever delivered were made during this period. Two among the most remarkable deserve special mention; one was against the adoption of certain resolutions advocating the policy of reopening the African slave trade, and the other in favor of the maintenance of the Union of States, called forth by a report from the committee on federal relations. But the speech which displayed most strikingly his great gifts as an orator was that made by him as a member of the National Democratic Convention, which met in Baltimore in 1872. The charm and witchery of his eloquence on this occasion so completely captivated the vast throng who heard him that, with one impulse, they rose to their feet and filled the immense hall in which they were gathered with round after round of deafening applause. The press of the day spoke of it as an effort "worthy of a Henry or a Preston."

When, in 1876, the honest people of his native State determined to make a supreme and united effort to free themselves from the thralldom of the infamous men who for eight long years had used every department of the government simply as an instrument for oppression or a means of advancing and legalizing schemes of robbery and spoliation, they found no tongue more eloquent to depict their wrongs, no voice more potent to kindle into a blaze of enthusiasm the energies which must crown their cause with success, than the tongue and voice of the gifted O'CONNOR. He was, during

this memorable struggle, the candidate of the Democracy of the second district for Congress; and whatever regrets others may have expressed for his defeat, he felt fully compensated for all the toil he had endured and all the sacrifices he had made in seeing his beloved State redeemed and once more restored to the control of those who had made her history glorious and her name immortal. Twice after this defeat he was returned as a member of this House, but lived only long enough to complete his first term. Short and uneventful as his career among us was, it was long enough to excite the brightest hopes for future renown, and long enough to fill our hearts to-day with sweet and sacred memories of his gentle nature, which time can never efface. Few, even among those most intimate with him while he occupied a seat on this floor, knew how intensely he suffered or how bravely he was fighting against the fatal disease which had fastened itself upon his vitals. The noble self-sacrifice he exhibited under all the adverse circumstances which surrounded him here, and the singleness of purpose with which he filled the hours so much needed for rest and recuperation with work for his constituents and anxious thought for the public welfare, is worthy of all praise.

Mr. Speaker, after the eloquent and touching eulogies already pronounced by the distinguished speakers who have preceded me, it is unnecessary for me to say more.

No constituency ever had a more faithful and devoted Representative; South Carolina no truer son; the cause of liberty, whether it centered around the shamrock, so dear to his heart, or gathered about the Stars and Stripes, no firmer friend; tyranny and wrong no more relentless foe.

On the 4th of March last he went out from among us with the shadow of death upon his brow; a month later he was released from suffering and found a resting-place beneath the Palmetto he loved so well, leaving behind him a memory as fragrant as the

flowers which bloom above him, and as fresh and green to-day as the grass upon his grave.

Mr. Speaker, I move the adoption of the resolutions presented by my colleague.

The resolutions were unanimously adopted; and accordingly the House adjourned.

PROCEEDINGS IN THE SENATE.

FEBRUARY 9, 1882.

A message from the House of Representatives, by Mr. JOHN BAILEY, its Chief Clerk, communicated to the Senate the intelligence of the death of Hon. MICHAEL P. O'CONNOR, late a member of the House from the State of South Carolina, and transmitted the resolutions of the House thereon.

The resolutions were read, as follows:

Resolved, That this House has heard with profound sorrow of the death of Hon. MICHAEL P. O'CONNOR, late a member of this House from the State of South Carolina.

Resolved, That as a mark of respect to his memory the officers and members of this House will wear the usual badge of mourning for thirty days.

Resolved, That a copy of these resolutions be transmitted by the Clerk of this House to the family of the deceased.

Resolved, That the Clerk be directed to communicate a copy of these proceedings to the Senate; and that, as a further mark of respect to the memory of the deceased, this House do now adjourn.

Mr. BUTLER. Mr. President, I offer the following resolutions:

Resolved, That the Senate has received with profound sorrow the announcement of the death of Hon. MICHAEL P. O'CONNOR, late a member of the House of Representatives from the State of South Carolina.

Resolved, That the business of the Senate be now suspended that opportunity may be given for fitting tributes to the memory of the deceased and to his eminent public and private virtues, and that as a further mark of respect the Senate at the conclusion of such remarks shall adjourn.

Address of Mr. BUTLER, of South Carolina.

Mr. PRESIDENT: The frequent recurrence of these sad occasions in the Congress of the United States, when we are called upon by fitting ceremonies to pay a final tribute to the memories of our

brethren who have died from among us, is calculated to remind us with striking significance of the slight tenure we have upon life. But a few days have elapsed since we heard in this Chamber the touching and affectionate tributes to two of the most distinguished and beloved of our number—one the late lamented Senator from Rhode Island (General Burnside), the embodiment of vigorous health, and yet he answered the call of the grim messenger as serenely as did the great Wisconsin Senator (Carpenter), who languished and suffered and sunk under the wasting hand of disease; and again to-day, sir, we are confronted with the dismal reality that another of our brethren of the other House is dead.

His reputation and fame were not so wide-spread and national as the two renowned Senators, but the hearts of neither of them, generous as they were, throbbed with more fervid patroitism or warmed with more generous sympathies than did that of my late friend, M. P. O'CONNOR. He loved his country and his friends with unstinted devotion, and in turn received the homage of their undivided confidence and respect.

The overflowing generosity and kindness of his enthusiastic Irish nature secured for him the warmest attachment of his friends, and his ardent devotion to the best interests of his country and the requirements of duty commanded the admiration of all men.

Mr. O'CONNOR was born in the old town of Beaufort, South Carolina, on the 29th of September, 1831, and died in Charleston on the 26th day of April, 1881, in the fiftieth year of his age.

He was educated and graduated at Saint John's College, Fordham, New York, and was by profession a lawyer, with his office in the city of Charleston. He represented that city for four terms in the legislature of South Carolina, from 1858 to 1865, and was elected to the Forty-fifth and Forty-sixth Congresses from the second Congressional district, and died while a member of the Forty-sixth Congress.

In 1872 Mr. O'CONNOR was a delegate to the National Democratic Convention held in the city of Baltimore, and again represented his party in the national convention at Saint Louis in 1876.

He was highly gifted as an orator and public speaker. In the course of the proceedings of the Baltimore convention he made one of those impassioned bursts of eloquence that electrify an audience and take it captive. He lighted a spark that swept through the convention with irresistible enthusiasm, and acquired in this national arena a reputation as a public speaker that had hitherto been local, but none the less duly appreciated by those who were accustomed to hear him. His style of oratory was peculiarly attractive and captivating. With a clear, ringing voice, under perfect control, his style was as chaste and classical as the most finished elocutionist, and his flow of language as easy and unhesitating as an unobstructed stream. Equipped with these high qualities, coupled with a ripe scholarship and well-stored mind, he was a ready and effective speaker and only awaited a fitting opportunity in the other branch of the National Legislature to have illustrated his great powers as a parliamentary debater.

In 1876 Mr. O'CONNOR was made president of that ancient order of glorious memories and associations, the Hibernian Society of Irishmen, of Charleston. Hear what one of that society says of him, Hon. A. G. Magrath, who was himself a paragon of perfect speech with a brilliant intellect. In presenting the tribute of respect to the late president, at a meeting of the Hibernian Society, May 3, 1881, Judge Magrath said:

> The flowers I lay on his grave are not bright and beautiful as he would have gathered, but who could equal his taste or his skill?
>
> * * * * * * *
>
> His heart was as open and cheering as the light of day. His sympathy with his race was attuned to a perfect harmony. Suffering, whatever form it took, was resistless in its appeal; and oppression, however imposing in its force, was confronted by him, who never quailed before it. And when it grew in its proportions and threatened communities, his spirit rose equal to the magni-

tude of the occasion; and a generous heart inspired the burning words that caused his passionate eloquence to stir the most sluggish to sympathy with him.

No one born in the land of his forefathers more rejoiced in all that was glorious in its past; or in more touching pathos mourned what is sad and depressing in its present fortunes. These walls have echoed his denunciations of its wrongs, and the demand for its rights. But of these there is no record. They were like the flash of the lightning, brilliant, dazzling, startling; not to be forgotten, yet not to be recalled.

But for his own State, his own city, his own home, his own friends, every generous and indignant passion in him was stirred to its deepest depths in the suffering he saw and shared. When in giving expression to his feeling, when the heart and the brain, with intensity that could not be surpassed in their union, rose into the grand diapason of oratory, he stood to champion her cause, no more devoted son could be found within her limits. He spoke as men do whose words ring true to the honest passion which prompts their utterance and they who speak forget themselves in kinship with those whose wrongs only are remembered.

He occupied a commanding position in that galaxy of distinguished lawyers at the Charleston bar—one of the ablest, I think, in the whole country—and held his own successfully in intellectual contests with the brightest luminaries of his professional brethren. His entry into active political life was attended by one of the most vexatious and bitter contests ever known in the political history of this country, and yet his most unsympathetic political antagonist will concede that throughout the long and trying ordeal he bore himself with becoming moderation and decorum, and with the self-respect and bearing of a dignified gentleman. Upon taking his seat in the Forty-sixth Congress he was assigned to some of the important committees, and devoted himself with unassuming but faithful earnestness to his duties. Watching the interests of his immediate constituency and section with singular fidelity, taking broad, liberal views of all matters presented to Congress for consideration, he never permitted his duty to his State to narrow his views on national questions. Such, Mr. President, is a brief record of his outward public career. It is as honorable as any man's.

He was for many years in the open light of the public gaze, in

times of great temptation and excitement, but no whisper ever tainted his character; no breath of suspicion ever impaired the strength of his public life, and no word of reproach was ever uttered against his private worth. He literally "died in harness," discharging his high duty with a fidelity that was as sacred to him as his life, and an ability that reflects luster upon his name. This, sir, is a feeble, not overdrawn, encomium that I bestow upon a dead friend with sincere regard for his memory.

But there was an inner circle in Mr. O'CONNOR's life—the family, the home, friends—where he was as simple and unselfish in his affections as a guileless child. It is almost forbidden to enter that sacred circle upon a public occasion, but my contribution to these memorial ceremonies, however otherwise imperfect, would be incomplete without allusion to that phase of his life where the undisguised tenderness of a manly heart and unrestrained indulgence in his pure affections dispensed so much happiness and pleasure to those who clung to him with such ardent devotion. That circle is broken forever.

What power can measure the intensity of the anguish that wrung the hearts of those who had been made glad and happy by his generous affections? Certainly no human power. Let us, then, draw tenderly and reverently the veil of mourning over the sacred mystery, and lay upon his green grave the homage of our unaffected sorrow.

He lies beneath the soil of the State he loved so well and served so faithfully. It was there he wished to be buried and rest forever, where the ceaseless moaning of the stately pine and the rustling breezes through the ever-green magnolia, mingling with the restless murmur of the neighboring waves and sighing winds of his beloved sunny land, might sing his requiem forever in the perfect harmonies of nature's faultless symphonies.

Address of Mr. BAYARD, of Delaware.

Mr. PRESIDENT: My personal acquaintance with the worthy gentleman whose death we all deplore was commenced amid the somewhat stormy scenes of a national convention, held in the city of Baltimore, in June, 1872, which he attended as a delegate from the State of South Carolina; and I can well recall the spirited and effective eloquence with which he espoused a course of action in which I did not concur.

He subsequently became a member of the House of Representatives, and friendly personal relations were soon established between us, in which I discerned his active, ardent interest in public affairs, and his usefulness as an able and honorable representative of his State and country.

He gained early, and never lost, the confidence and esteem of his associates without regard to their party affiliations, and his reputation as a capable and faithful legislator will long survive.

I remember well his friendly and especial interest in the affairs of that peculiarly helpless class of our people, who suffered so severely by the failure of the Freedman's Savings Bank and the subsequent mismanagement of its assets.

He espoused the cause of that large body of poor investors with characteristic generosity and devotion, and, had his wise counsels prevailed, I believe great deterioration in the assets of that institution and heavy losses would have been prevented.

Mr. O'CONNOR, although a natural-born citizen of South Carolina, possessed, in a marked degree, the characteristics of the race from which he sprung. His name and parentage were Irish; and he was one of the almost countless illustrations of worth and character, eloquence and wit, courage and capacity, which that island of

sorrows has contributed to build up and strengthen the Government of the United States and the advancement of its people.

Mr. President, if the names of the men of Irish birth and Irish blood who have dignified and decorated the annals of American history were to be erased from the record, how much of the glory of our country would be subtracted! In the list of American statesmen and patriots, theologians and poets, soldiers and sailors, jurists and orators, what names shine with purer luster or are mentioned with more respect than those of the men, past and present, we owe to Ireland?

On that imperishable roll of honor, the Declaration of Independence, we find their names, and in the prolonged struggle that followed there was no battle-field from the Saint Lawrence to the Savannah but was enriched with Irish blood shed in the cause of civil and religious liberty. To-day we see them in our midst, honored and beloved by their associates, and valued not only by their constituents alone, but by the entire country. Of this patriotic class was Mr. O'CONNOR, and whilst we cannot fail to mourn the loss occasioned by his death, we may well cherish the legacy of honest fame and faithful public service he has left us.

Address of Mr. JONES, of Florida.

Mr. PRESIDENT: Only a few weeks ago the Senate was called upon to express its respect and sympathy over the loss of two of its distinguished members, and it sent its resolutions of mourning to receive the concurrence of the other house. To-day that house, as if to remind us of the undiscriminating harshness of death, and that no official station within or without this Capitol can shield or protect its victims, informs us officially of the loss of one of its members. The worthy man of whom I am to speak to-day was not known

to many Senators as well as he was to me. I met him in the first political body I ever entered—the Baltimore convention of 1872; and when he entered the other house my acquaintance ripened into intimacy. In my intercourse with him I had a fair opportunity of studying and appreciating his character, which was eminently distinguished for qualities that always have excited and always will excite both interest and admiration.

MICHAEL P. O'CONNOR was a generous, tender-hearted, brave man. His mind was active, bright, and full of impartiality. And his great heart—how shall I speak of it?—was filled to overflowing with the kindliest and tenderest feelings and sympathies, which needed only the faintest exhibition of sorrow or misfortune to bring them into full play. He was the undoubted possessor of some of the best qualities of that race to which his name exclusively belongs. While he was a native of South Carolina, and was devoted to her as strongly as man ever was to the soil that gave him birth, in all the controlling characteristics of nature he was an Irishman—more of an Irishman than many who first saw the light of heaven on Irish soil; and there was not the least dross in his character to obscure or disfigure those genuine traits of the race from which he sprung.

While no one claimed for him those pre-eminent gifts of mind which immortalized Sheridan, Grattan, and Curran, still he had qualities in common with all of those great men, and without which their purely intellectual gifts never would have made them famous as orators and thinkers. The inflamed fancy, the enthusiastic spirit, the emotional nature were all his, and with them he combined a lofty, indeed I might say an ever watchful and sensitive, courage, which was ever on tip-toe surveying everything that approached the sacred domain of his manhood and honor. The slightest imputation or insinuation of indignity would arouse all the stormy fury of his nature, while the simplest appeal to his charity and kindness would melt him into the tenderest sympathy and almost bring forth

his tears. Whatever cause or object enlisted his exertions received from him the most persevering support, and he gave in such cases to the interests and concerns of the stranger more labor and effort than he would ever give to his own.

His was one of those noble souls which, instead of leaving the great highway of suffering and sorrow to avoid the appeals of the injured and distressed, are forever in search of objects upon which to exercise their benevolence and kindness. The sufferings and wrongs of the country of his fathers affected him as deeply as they did any one who had personally felt their sting. He was familiar with her sad history of tears and blood; never weak enough to deny her claim to the sympathy of the world, or because of her poverty and oppression refused her the honor and recognition that was due to her genius and her fame. Whenever a kind or sympathetic word was called for in the interest of Ireland, the voice of M. P. O'CONNOR was always heard. While he might have skulked behind his nativity and disclaimed his Irish blood, he was too great and good and true to be either insincere or indifferent in anything, and his justice and intelligence were too strong and decided for him ever to think of any petty advantage which might flow from joining those who gave the cold shoulder to the land of his fathers. The admonition of Ireland's great poet had no effect upon him:

> Unprized are her sons till they learn to betray,
> Undistinguished they live if they shame not their sires,
> And the torch that would light them to dignity's way
> Must be caught from the pile when their country expires.

In his character of a national legislator he combined the most untiring devotion to the interests of his immediate constituents with a sincere and active interest for the welfare and happiness of the whole Union. Accepting with manly resignation the inevitable results of the civil war, he brought to the councils of his country a mind and heart free from all unkindness and prejudice

as well as an honest determination to employ his best talents in promoting concord and good-will among all classes of the people. Often have I been benefited by the breadth and patriotism of his views respecting the duties of those who represented Southern constituencies in Congress. He spoke with the wisdom of a philosopher and in the words of a true patriot.

He was not unmindful of the natural effects of the terrible civil conflict through which we had passed in obstructing for a time the extension of justice and kindness to the section he so dearly loved. He made due allowance for the passions and weaknesses of human nature, and what others attributed to inborn and irremediable hostility he knew to be only the excrescence of protracted sectional strife, which, if not inflamed for unworthy purposes by weak or designing men, would ultimately yield to the healthy reaction of the body-politic, and leave the country in the enjoyment of real peace, union, and concord.

I have seen him surrounded by his devoted family, and any one in the least conversant with the operations of his private life could readily see that to his high qualities as a citizen and public servant he added the virtues of a devoted husband and an affectionate father. I have sometimes heard public men applauded for their Christian faith. With Mr. O'Connor religion was not an empty name. He did not aim to be a pillar of the church, and never attempted to put his piety into the faces of those with whom he mingled. Like all true men he eliminated it from all else that appertained to the affairs of this life, and regarded it as a sacred thing in which only himself and his God were concerned. Devoid of all sectarian narrowness and bigotry, his preference for the creed in which he lived and died never for a moment interrupted the course of his friendship and love for those who differed from him. Although cut down in the prime of his manhood, he lived long enough to establish a character for honor, usefulness, and

devotion to duty of which both his family and people may be proud.

Oh, my beloved and devoted friend,
  While kindred woes still breathe around thine urn,
Long with the tear of absence must I blend
  The sigh that speaks, Thou never shalt return.

'Twas faith that, bending o'er the bed of death,
  Shed o'er thy pallid cheek a transient ray;
With softer effort soothed thy laboring breath,
  Gave grace to anguish, beauty to decay.

Thy wife and children claimed thy latest care;
  Theirs was the last that to thy bosom clung;
For them to Heaven thou send'st the expiring prayer,
  The last that faltered on thy trembling tongue.

Address of Mr. HAMPTON, of South Carolina.

Mr. PRESIDENT: Twice within the past few days have we been called upon to do honor to the memory of colleagues who have been summoned to answer that great final roll-call on high, to which all mankind must respond. Laying aside the ordinary routine of business; pausing for a time amid the rush of active life and the clash of conflicting opinions; forgetting even all political differences, we met, on those solemn occasions, on the broad ground of a common humanity, consecrated to us by a common affliction. Rhode Island and Wisconsin, mourning the death of two illustrious citizens who had represented them in this Chamber, called then upon the great sisterhood of States for that sympathy which sorrow such as theirs demands, and which should always be freely given. We all know how generously, how tenderly this was extended. To-day South Carolina, deploring the loss of a gifted and devoted son, turns in her bereavement to her sister States for the same sympathy.

The resolutions which have been presented by my colleague tell of the death of Hon. M. P. O'CONNOR, late a Representative from

my State in the other branch of Congress, and the touching tributes which have been paid to his memory leave me nothing to say that could add to the high and deserved estimation in which he was held. Feeling this, I should remain silent were it not that as a representative on this floor of the State which honored him, and which he loved so ardently, it becomes me to bear testimony to his signal public services and to his eminent private virtues. As a Senator from South Carolina it is my duty to do this, but a much higher duty, one very near my heart, demands this at my hands: he was a valued and trusted friend. The warm friendship I entertained for him sprung up in long by-gone years; it grew stronger as time rolled on, and it was terminated only by his death. I feel his loss, therefore, not only as a public calamity, but as a severe personal bereavement. Few men in our State had a wider circle of earnest, devoted friends than himself, and I know of no tribute to him which could be more honorable, more touching, or more tender than the general sense of personal loss felt at his death by all of them. Warm-hearted, generous, kind, and lovable, he drew his friends close to him, and they loved him for his virtues while they admired him for his talents.

He was no ordinary man either in character or intellect, for while the one secured for him the esteem of those who knew him, the other won for him a wide and well-earned reputation. The warm Irish blood that flowed in his veins gave to his nature its impulsive generosity and lent to his persuasive tongue no small portion of that marvelous eloquence which seems to be the birthright of the countrymen of Burke, of Sheridan, of Curran, of Grattan, and of O'Connell. But, with all these rare gifts of nature, of intellect, and of education, he was not fitted for the rough conflict of political strife, and I have no doubt his life was cut short by the anxieties, the responsibilities, and the vexations attending a public career. He was so conscientious in the discharge of all his duties, so labo-

rious in the performance of them, so sensitive in his nature, that his health gave way under the severe strain to which it was subjected by his public duties. Broken in health, bravely struggling to the last in the interest of the people who had honored him, he fell at his post of duty with his harness on, and his last, his dying efforts were given to the State he had served well, and to the people who loved and trusted him. His death was a severe loss to that State, an irreparable one to his family, but a gain to him, for he had so lived that he was well prepared to give an account of the deeds done in the flesh. He lived long enough to achieve an honorable, enviable reputation, and long enough to realize that—

The paths of glory lead but to the grave.

When he was laid at rest in the bosom of his mother earth, under the shadows of the magnolias of his native land, a friend who knew him well wrote thus of him:

For him who lies in peace, with restful hands, this morning, it had been better perhaps had he never known the vicissitudes and responsibilities of political life. It was all loss to him. The gain was to his people and the State. So must it be too often in such times as these with men most worthy of public trust.

Doubtless, Mr. President, it would have been better for him had he held aloof from the rude arena of political warfare, keeping the even tenor of his way along the quieter and happier paths of private life; but we who are left are better for the example of his life and that of his death. The one shows us the duty of the patriot, the other teaches the sublime faith of the Christian. They both should impress on us the great lesson that—

'T is not the whole of life to live:
Nor all of death to die.

The resolutions were agreed to unanimously; and the Senate adjourned.

47TH CONGRESS, 1st Session. } HOUSE OF REPRESENTATIVES. { MIS. DOC. No. 60.

APPARENT

RIGHT ASCENSIONS

OF

ADDITIONAL TIME-STARS

1881-1884

WITH MEAN PLACES FOR 1884.0

A SUPPLEMENT TO THE AMERICAN EPHEMERIS AND NAUTICAL ALMANAC FOR 1884

WASHINGTON
BUREAU OF NAVIGATION
1882

THE NEW YORK
PUBLIC LIBRARY

ASTOR, LENOX AND
TILDEN FOUNDATIONS
1900.

INTRODUCTION.

In *The American Ephemeris* for 1882 the list of fixed stars was greatly enlarged in order to supply the constantly growing wants of field-observers engaged in the determination of geographical positions. The stars added were designed for both time and azimuth, the latter including southern as well as northern circumpolar stars. The list of mean places was, at the same time, so arranged as to serve the purpose of a working field-catalogue, by repeating the positions of the northern circumpolar stars for the lower culmination.

It was intended to include partial ephemerides of the apparent positions of these stars in the annual volumes of the large Ephemeris. This, however, was not practicable previous to the preparation of the volume for 1885, and the present supplement fills the want for the four years immediately preceding.

The ephemerides are confined to the right ascensions, and to those periods of the year during which the several stars can be conveniently observed on the meridian. Roughly speaking, the periods are those during which the culmination occurs between six o'clock and midnight.

The mean places have been derived from a variety of sources, and are not to be regarded as definitive. In one or two cases they may be considerably in error, but it is believed that the great body of them are amply adequate for field-work.

SIMON NEWCOMB,
Professor U. S. Navy, Superintendent.

Nautical Almanac Office,
Navy Department,
1882, *June.*

MEAN PLACES FOR 1884.0. (January 0d.227, Washington.)

	Name of Star.	Magnitude.	Right Ascension.	Annual Variation.	Declination.	Annual Variation.
			h m s	s	° ′ ″	″
	α Andromedæ . . .	2.0	0 2 23.570	+ 3.0904	+ 28 26 59.77	+ 19.885
*	β Cassiopeæ	2.0	0 2 59.559	3.1712	+ 58 30 34.70	19.852
*	22 Andromedæ . . .	5.3	0 4 17.671	3.1005	+ 45 25 35.48	20.036
	4 Draconis (H.) . . S. P.	4.7	0 6 45.458	2.8927	+101 44 20.88	20.023
	γ Pegasi (*Algenib*) . .	2.7	0 7 15.787	3.0832	+ 14 32 18.90	20.025
*	σ Andromedæ . . .	4.3	0 12 16.185	+ 3.1217	+ 36 8 31.04	+ 19.985
*	ι Ceti	3.3	0 13 30.911	3.0529	− 9 28 2.26	19.959
*	6 Ursæ Minoris . . S. P.	6.0	0 14 19.604	0.1015	+ 91 39 24.92	19.941
*	44 Piscium	6.0	0 19 27.372	3.0729	+ 1 17 49.90	19.955
	β Hydri	3.0	0 19 38.137	3.2394	− 77 54 27.51	20.287
	12 Ceti	6.0	0 24 7.122	+ 3.0610	− 4 35 54.11	+ 19.941
	κ Draconis . . . S. P.	3.3	0 28 31.666	2.5948	+109 34 20.21	19.893
*	π Andromedæ . . .	4.0	0 30 41.196	3.1893	+ 33 4 49.90	19.875
	α Cassiopeæ (*var.*) . .	2.5	0 33 55.816	3.3708	+ 55 54 3.28	19.794
	β Ceti	2.0	0 37 46.007	3.0146	− 18 37 24.94	19.807
	21 Cassiopeæ	6.0	0 38 0.099	+ 3.8487	+ 74 21 13.54	+ 19.757
*	ο Cassiopeæ	5.0	0 38 15.835	3.3170	+ 47 38 57.20	19.759
*	δ Piscium	4.3	0 42 39.846	3.1069	+ 6 57 12.56	19.654
	32[2] Camelop. (H.) . S. P.	4.7	0 48 17.133	0.3810	+ 95 57 23.66	19.597
*	γ Cassiopeæ	2.0	0 49 42.816	3.5751	+ 60 5 17.56	19.570
*	μ Andromedæ . . .	4.0	0 50 18.993	+ 3.3094	+ 37 52 11.77	+ 19.623
*	43 Cephei (H.) . . .	4.3	0 53 4.993	7.1600	+ 85 38 2.96	19.517
	ε Piscium	4.0	0 56 55.386	3.1085	+ 7 15 55.13	19.461
	β Andromedæ . . .	2.3	1 3 14.365	3.3427	+ 35 0 18.71	19.173
*	*f* Piscium	5.0	1 11 48.925	3.0893	+ 3 0 11.51	19.042
*	ε Tucanæ	5.0	1 11 50.076	+ 2.0562	− 69 29 32.19	+ 19.176
	α Ursæ Minoris (*Polaris*)	2.0	1 16 14.291	22.3000	+ 88 41 24.87	18.954
	θ[1] Ceti	3.0	1 18 13.507	2.9969	− 8 46 56.18	18.677
	38 Cassiopeæ	6.3	1 22 36.683	4.3699	+ 69 40 1.19	18.689
	η Piscium	3.7	1 25 16.611	3.2018	+ 14 44 50.78	18.674
*	υ Andromedæ . . .	4.0	1 29 59.504	+ 3.5024	+ 40 49 29.65	+ 18.157
*	π Piscium	5.7	1 30 56.983	3.1698	+ 11 32 52.18	18.537
	α Eridani (*Achernar*) .	1.0	1 33 23.299	2.2331	− 57 49 34.97	18.364
*	ν Piscium	4.7	1 35 23.705	3.1174	+ 4 54 0.61	18.340
	ο Piscium	4.3	1 39 16.123	3.1617	+ 8 34 23.94	18.228
*	ζ Ceti	3.0	1 45 44.077	+ 2.9617	− 10 54 33.92	+ 17.835
	β Arietis	3.0	1 48 13.970	3.3025	+ 20 14 25.69	17.741
	50 Cassiopeæ	4.0	1 53 32.803	5.0008	+ 71 51 32.97	17.666
*	γ Andromedæ . . .	2.3	1 56 46.891	3.6583	+ 41 46 20.71	17.457
	α Arietis	2.0	2 0 38.124	3.3699	+ 22 54 47.96	17.188
	α Draconis . . . S. P.	3.3	2 1 14.989	+ 1.6235	+115 4 10.48	+ 17.306
*	β Trianguli	3.0	2 2 38.607	3.5529	+ 34 26 16.59	17.219
	ξ[1] Ceti	4.3	2 6 51.144	+ 3.1734	+ 8 18 7.04	17.044
*	4 Ursæ Minoris . . S. P.	5.0	2 9 18.981	− 0.3311	+101 54 26.51	16.909
*	γ Trianguli	4.3	2 10 25.205	+ 3.5494	+ 33 18 36.08	16.861
*	67 Ceti	6.0	2 11 11.834	+ 2.9891	− 6 57 26.60	+ 16.746
	ι Cassiopeæ	4.0	2 19 30.997	4.8551	+ 66 52 47.54	16.456
*	δ Hydri	4.0	2 19 41.290	1.0532	− 69 11 14.67	16.456
	ξ[2] Ceti	4.0	2 21 59.538	+ 3.1831	+ 7 56 21.92	16.310
	5 Ursæ Minoris . . S. P.	4.7	2 27 46.958	− 0.1967	+103 47 18.08	+ 16.011

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	Name of Star.	Magnitude.	Right Ascension.	Annual Variation.	Declination.	Annual Variation.
			h m s	s	° ′ ″	″
*	δ Ceti	4.0	2 33 32.234	+ 3.0723	− 0 10 21.87	+ 15.713
*	μ Hydri	6.0	2 34 9.191	− 1.4496	− 79 36 54.31	15.675
*	θ Persei	4.0	2 36 16.857	+ 4.0670	+ 48 44 12.62	15.479
	γ Ceti	3.3	2 37 17.408	+ 3.1028	+ 2 44 46.48	15.356
*	σ Arietis	5.7	2 45 5.336	+ 3.3036	+ 14 36 11.68	15.026
*	47 Cephei (H.)	6.0	2 50 42.566	+ 7.6971	+ 78 57 29.90	+ 14.738
	β Ursæ Minoris . . S. P.	2.0	2 51 3.227	− 0.2366	+105 22 13.64	14.718
*	ε Arietis	4.3	2 52 34.805	+ 3.4200	+ 20 52 32.23	14.625
	α Ceti	2.3	2 56 12.958	+ 3.1298	+ 3 38 1.95	14.327
*	β Persei (*Algol*) (*var.*)	2.7	3 0 37.398	+ 3.8817	+ 40 30 27.53	14.143
	48 Cephei (H.)	6.3	3 5 38.309	+ 7.3875	+ 77 18 23.47	+ 13.775
	ζ Arietis	4.7	3 8 14.081	+ 3.4384	+ 20 36 49.20	13.577
	α Persei	2.0	3 16 2.722	+ 4.2548	+ 49 26 49.70	13.120
*	ι Hydri	5.0	3 18 52.288	− 1.6091	− 77 48 41.55	13.017
	γ^2 Ursæ Minoris . . S. P.	3.0	3 20 55.223	− 0.1377	+107 45 11.67	12.811
*	f Tauri	4.0	3 24 28.137	+ 3.3042	+ 12 32 17.78	+ 12.585
	ε Eridani	3.0	3 27 27.919	+ 2.8233	− 9 51 5.41	12.412
	δ Persei	3.3	3 34 40.157	+ 4.2477	+ 47 24 55.24	11.838
*	γ Camelopardalis (H.)	4.3	3 38 7.714	+ 6.2297	+ 70 58 22.63	11.586
	η Tauri	3.0	3 40 35.371	+ 3.5559	+ 23 44 43.34	11.404
	ζ Persei	3.0	3 46 50.496	+ 3.7590	+ 31 32 16.53	+ 10.976
	ζ Ursæ Minoris . . S. P.	4.3	3 48 13.479	− 2.2624	+101 50 57.28	10.907
*	γ Hydri	3.3	3 49 2.751	− 1.0026	− 74 35 39.11	10.975
*	ε Persei	3.3	3 50 4.236	+ 4.0084	+ 39 40 24.14	10.750
	γ Eridani	3.0	3 52 37.080	+ 2.7983	− 13 50 21.67	10.465
*	A^1 Tauri	4.7	3 57 50.299	+ 3.5391	+ 21 45 49.27	+ 10.108
*	c Persei	4.0	4 0 14.552	+ 4.3352	+ 47 24 5.03	9.971
	Groombr. 2320 . . S. P.	6.3	4 6 0.350	+ 0.1376	+111 53 2.87	9.499
*	o^1 Eridani	4.3	4 6 12.191	+ 2.9264	− 7 8 27.76	9.638
	γ Tauri	4.0	4 13 11.557	+ 3.4083	+ 15 20 47.26	8.984
*	η Ursæ Minoris . . S. P.	5.0	4 20 54.388	− 1.8226	+103 58 40.10	+ 8.149
	ε Tauri	3.7	4 21 50.605	+ 3.4968	+ 18 55 19.19	8.284
	η Draconis . . . S. P.	2.7	4 22 25.420	+ 0.8053	+118 13 22.98	8.228
*	m Persei	6.0	4 25 15.291	+ 4.2087	+ 42 48 52.70	8.036
*	δ Mensæ	6.0	4 25 51.052	− 4.2399	− 80 29 3.40	8.013
	A Draconis . . . S. P.	5.0	4 28 12.991	− 0.1372	+110 58 51.88	+ 7.797
	α Tauri (*Aldebaran*)	1.0	4 29 15.890	+ 3.4367	+ 16 16 29.85	7.542
*	τ Tauri	4.3	4 35 16.987	+ 3.5947	+ 22 43 59.28	7.213
	α Camelopardalis	4.7	4 42 31.276	+ 5.9213	+ 66 8 36.90	6.650
*	i Tauri	5.3	4 44 35.314	+ 3.5048	+ 18 38 28.24	6.434
	ι Aurigæ	3.0	4 49 26.413	+ 3.8999	+ 32 58 52.00	+ 6.056
*	ζ Aurigæ	4.0	4 54 22.235	+ 4.1841	+ 40 54 18.22	5.658
	ε Ursæ Minoris . . S. P.	4.3	4 57 53.645	− 6.3484	+ 97 46 25.49	5.370
	11 Orionis	5.0	4 57 56.434	+ 3.4239	+ 15 14 28.82	5.326
*	β Eridani	3.0	5 2 8.824	+ 2.9483	− 5 14 14.67	4.950
	α Aurigæ (*Capella*)	1.0	5 8 7.244	+ 4.4238	+ 45 52 42.41	+ 4.066
	β Orionis (*Rigel*)	1.0	5 8 57.791	+ 2.8811	− 8 20 11.99	4.423
*	τ Orionis	4.0	5 11 58.432	+ 2.9123	− 6 58 15.31	4.160
	β Tauri	2.0	5 18 57.561	+ 3.7888	+ 28 30 29.23	3.392
	Groombridge 966	6.3	5 24 13.562	+ 7.9967	+ 74 57 51.10	+ 3.137

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	Name of Star.	Magnitude.	Right Ascension.	Annual Variation.	Declination.	Annual Variation.
			h m s	s	° ′ ″	″
*	Groombridge 944 . .	6.3	5 24 56.518	+18.6191	+ 85 8 4.61	+ 3.067
*	χ Aurigæ	5.0	5 25 10.750	+ 3.9045	+ 32 6 18.49	3.055
	δ Orionis (*var.*) . . .	2.5	5 26 4.830	+ 3.0632	− 0 23 9.96	2.952
	α Leporis	3.0	5 27 36.850	+ 2.6446	− 17 54 22.49	2.824
	ε Orionis	2.0	5 30 19.640	+ 3.0421	− 1 16 37.46	2.590
	α Columbæ	2.0	5 35 26.976	+ 2.1726	− 34 8 12.20	+ 2.099
	ω Draconis . . . S. P.	5.0	5 37 37.927	− 0.3544	+111 11 18.91	1.630
*	κ Orionis	2.7	5 42 15.272	+ 2.8447	− 9 42 42.71	1.554
*	ν Aurigæ	4.0	5 43 26.994	+ 4.1540	+ 39 6 46.69	1.483
	ψ^1 Draconis . . . S. P.	4.3	5 44 0.155	− 1.0801	+107 47 40.74	1.672
*	δ Doradus	4.3	5 44 34.127	+ 0.1043	− 65 46 44.18	+ 1.329
	α Orionis (*var.*) . . .	1.2	5 48 53.503	+ 3.2468	+ 7 23 3.34	0.979
*	β Aurigæ	2.0	5 51 1.202	+ 4.4015	+ 44 56 2.44	0.775
*	θ Aurigæ	3.0	5 51 48.704	+ 4.0918	+ 37 12 10.99	+ 0.628
	ν Orionis	4.7	6 0 56.980	+ 3.4273	+ 14 46 51.92	− 0.113
	22 Camelopardalis (H.)	4.7	6 6 3.497	+ 6.6179	+ 69 21 29.64	− 0.648
*	η Geminorum . . .	3.3	6 7 52.563	+ 3.6227	+ 22 32 21.07	0.705
	δ Ursæ Minoris . . S. P.	4.3	6 9 44.395	−19.4505	+ 93 23 23.15	0.902
	μ Geminorum . . .	3.0	6 15 56.585	+ 3.6315	+ 22 34 18.49	1.515
*	ψ^1 Aurigæ	5.3	6 15 57.857	+ 4.6267	+ 49 20 43.67	1.406
	α Argus (*Canopus*) . . .	1.0	6 21 22.704	+ 1.3303	− 52 37 57.49	− 1.859
*	ν Geminorum . . .	4.7	6 22 4.511	+ 3.5631	+ 20 17 3.44	1.951
*	χ Draconis . . . S. P.	4.0	6 23 8.812	− 1.0791	+107 19 4.38	1.645
	γ Geminorum . . .	2.3	6 31 0.638	+ 3.4675	+ 16 29 49.52	2.752
*	ε Geminorum . . .	3.3	6 36 47.685	+ 3.6936	+ 25 14 40.98	3.219
*	ψ^5 Aurigæ	5.7	6 38 22.601	+ 4.3294	+ 43 41 29.02	− 3.195
	α Canis Majoris (*Sirius*)	1.0	6 40 2.197	+ 2.6437	− 16 33 28.49	4.692
*	θ Geminorum . . .	3.3	6 45 8.607	+ 3.9609	+ 34 5 59.40	3.957
	51 Cephei (H.) . . .	5.3	6 45 45.652	+30.0340	+ 87 13 29.46	4.070
*	ζ Mensæ	5.8	6 49 40.879	− 4.8934	− 80 41 21.98	4.232
	50 Draconis . . . S. P.	6.0	6 50 6.497	− 1.9050	+104 42 12.40	− 4.424
	ε Canis Majoris . . .	1.7	6 54 4.043	+ 2.3576	− 28 48 54.30	4.699
*	ζ Geminorum (*var.*) .	4.0	6 57 13.747	+ 3.5627	+ 20 44 21.14	4.974
	δ Canis Majoris . . .	2.0	7 3 40.485	+ 2.4384	− 26 12 35.08	5.490
*	63 Aurigæ	5.0	7 3 40.542	+ 4.1373	+ 39 30 30.62	5.481
*	25 Camelopardalis . .	4.7	7 6 36.827	+12.9850	+ 82 37 51.43	− 5.778
*	γ^3 Volantis (*var.*) . .	4.7	7 9 43.832	− 0.4853	− 70 18 36.16	5.887
	δ Draconis . . . S. P.	3.0	7 12 31.559	+ 0.0308	+112 32 33.02	6.326
	δ Geminorum . . .	3.3	7 13 11.691	+ 3.5884	+ 22 11 40.99	6.312
	τ Draconis . . . S. P.	4.7	7 17 46.714	− 1.1138	+106 51 36.82	6.784
	Piazzi vii. 67 . . .	6.0	7 18 48.185	+ 6.3033	+ 68 42 2.27	− 6.797
*	β Canis Minoris . . .	3.0	7 20 51.595	+ 3.2599	+ 8 31 18.96	6.967
	α^2 Geminorum (*Castor*)	1.7	7 27 11.900	+ 3.8392	+ 32 8 30.39	7.524
	α Canis Min. (*Procyon*)	1.0	7 33 13.760	+ 3.1437	+ 5 31 16.66	8.971
	β Geminorum (*Pollux*)	1.3	7 38 13.019	+ 3.6800	+ 28 18 18.88	8.390
	λ Ursæ Minoris . . S. P.	6.3	7 39 59.774	−63.3185	+ 91 2 48.82	− 8.485
*	26 Lyncis	6.0	7 46 15.766	+ 4.3898	+ 47 51 50.02	8.989
*	Groombridge 1374 .	5.7	7 46 17.254	+ 7.2958	+ 74 13 31.96	9.004
	φ Geminorum . . .	5.0	7 46 23.843	+ 3.6807	+ 27 3 53.90	9.003
	ε Draconis . . . S. P.	3.7	7 48 33.524	− 0.1768	+110 1 39.03	− 9.175

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			h m s	s	° ′ ″	″
*	ω^1 Cancri	6.0	7 53 54.724	+ 3.6380	+ 25 42 33.94	— 9.554
	3 Ursæ Majoris (H.)	5.7	8 1 15.521	+ 6.0555	+ 68 48 49.43	10.120
	15 Argus (ι)	3.0	8 2 36.243	+ 2.5544	− 23 58 14.19	10.178
*	ζ^1 Cancri	4.7	8 5 33.517	+ 3.4470	+ 17 59 45.69	10.580
*	β Cancri	3.7	8 10 13.428	+ 3.2589	+ 9 32 31.15	10.835
	κ Cephei (*pr.*) S. P.	4.3	8 12 46.473	− 1.9141	+102 38 18.41	— 11.007
*	30 Monocerotis	3.7	8 19 51.822	+ 3.0002	− 3 31 43.74	11.457
*	θ Chamæleontis	4.7	8 24 5.857	− 1.7015	− 77 6 34.90	11.772
	η Cancri	5.7	8 26 0.023	+ 3.4790	+ 20 50 3.43	11.982
	Groombr. 3241 S. P.	6.3	8 30 29.970	− 0.2162	+107 51 40.99	12.223
*	σ Hydræ	5.0	8 32 41.711	+ 3.1462	+ 3 44 52.15	— 12.414
*	γ Cancri	4.3	8 36 34.346	+ 3.4812	+ 21 53 4.98	12.704
	ξ Hydræ	3.3	8 40 37.977	+ 3.1822	+ 6 50 36.85	12.986
*	σ^2 Cancri (*mean*)	5.7	8 47 9.936	+ 3.6746	+ 31 1 4.09	13.386
	ι Ursæ Majoris	3.0	8 51 15.660	+ 4.1358	+ 48 29 46.12	13.881
	12 Year Cat. 1879 S. P.	6.0	8 52 48.899	− 2.5320	+ 99 53 0.29	— 13.698
	σ^3 Ursæ Majoris	5.0	9 0 10.364	+ 5.3621	+ 67 36 15.34	14.246
	κ Cancri	5.0	9 1 27.853	+ 3.2563	+ 11 8 3.58	14.273
*	θ Hydræ	4.0	9 8 19.751	+ 3.1265	+ 2 48 10.47	15.001
*	β Argus	1.5	9 11 55.341	+ 0.6796	− 69 14 22.00	14.802
	ι Argus	2.0	9 13 58.967	+ 1.6013	− 58 47 18.63	— 14.990
*	α Lyncis	3.3	9 13 59.130	+ 3.6705	+ 34 52 55.58	15.008
	α Cephei S. P.	2.7	9 15 48.636	+ 1.4369	+117 54 20.56	15.165
	1 Draconis (H.)	4.3	9 20 27.657	+ 9.0418	+ 81 50 14.52	15.406
	α Hydræ	2.0	9 21 53.230	+ 2.9492	− 8 9 23.13	15.438
	d Ursæ Majoris	4.7	9 24 12.294	+ 5.4099	+ 70 20 20.62	— 15.535
	θ Ursæ Majoris	3.0	9 25 5.542	+ 4.0442	+ 52 12 18.59	16.200
*	10 Leonis Minoris	4.7	9 27 6.902	+ 3.6957	+ 36 54 42.69	15.765
	β Cephei (*pr.*) S. P.	3.0	9 27 9.535	+ 0.7960	+109 56 54.45	15.753
*	o Leonis	3.7	9 34 57.539	+ 3.2074	+ 10 25 9.89	16.208
*	ζ Chamæleontis	5.0	9 37 15.707	− 1.5466	− 80 25 11.19	— 16.294
	ϵ Leonis	3.0	9 39 15.939	+ 3.4161	+ 24 18 27.82	16.411
	11 Cephei S. P.	5.0	9 40 13.220	+ 0.9030	+109 13 21.17	16.535
	μ Leonis	4.0	9 46 9.905	+ 3.4231	+ 26 33 9.68	16.782
*	19 Leonis Minoris	5.3	9 50 34.627	+ 3.6973	+ 41 36 26.59	16.947
	79 Draconis S. P.	6.3	9 51 25.255	+ 0.7317	+106 50 47.02	— 17.010
*	π Leonis	5.0	9 54 4.982	+ 3.1748	+ 8 36 0.74	17.127
	α Leonis (*Regulus*)	1.3	10 2 11.624	+ 3.2012	+ 12 32 1.18	17.463
	32 Ursæ Majoris	6.0	10 9 35.905	+ 4.4270	+ 65 41 10.55	17.796
*	λ Ursæ Majoris	3.3	10 10 5.839	+ 3.6417	+ 43 29 34.37	17.860
	γ^1 Leonis	2.0	10 13 34.579	+ 3.3157	+ 20 25 40.26	— 18.076
*	μ Hydræ	4.0	10 20 28.868	+ 2.9005	− 16 14 41.13	18.302
*	β Leonis Minoris	4.3	10 21 10.396	+ 3.4882	+ 37 18 4.25	18.304
*	α Antliæ	4.0	10 21 50.644	+ 2.7386	− 30 28 40.52	18.209
	9 Draconis (H.)	4.7	10 25 12.648	+ 5.2779	+ 76 18 35.44	18.378
	ρ Leonis	4.0	10 26 42.198	+ 3.1646	+ 9 54 11.13	— 18.423
	226 Cephei (B.) S. P.	5.3	10 30 14.067	+ 1.0793	+104 22 16.80	18.526
*	41 Leonis Minoris	5.7	10 37 6.457	+ 3.2717	+ 23 47 43.11	18.730
	η Argus (*var.*)	1–6	10 40 33.712	+ 2.3123	− 59 4 29.50	18.865
	l Leonis	5.3	10 43 9.592	+ 3.1590	+ 11 9 31.24	— 18.965

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			h m s	s	° ′ ″	″
*	δ^3 Chamæleontis	5.0	10 44 40.666	+ 0.6122	− 79 55 42.70	− 19.002
	ι Cephei S. P.	3.3	10 45 33.074	2.1206	+114 24 34.60	18.872
*	46 Leonis Minoris	4.0	10 46 49.339	3.3710	+ 34 50 24.24	19.288
*	Groombridge 1706	6.0	10 50 38.479	4.9870	+ 78 23 28.53	19.170
	α Ursæ Majoris	2.0	10 56 33.643	+ 3.7518	+ 62 22 37.16	19.357
*	η Octantis	6.0	11 0 4.870	− 0.2788	− 83 58 12.04	− 19.409
*	p^3 Leonis	6.0	11 0 59.196	+ 3.0622	+ 2 35 5.37	19.482
*	ψ Ursæ Majoris	3.3	11 3 8.304	3.3953	+ 45 7 38.63	19.499
	δ Leonis	2.3	11 7 56.309	3.1990	+ 21 9 32.51	19.681
*	ν Ursæ Majoris	3.3	11 12 12.803	3.2589	+ 33 43 37.51	19.569
	δ Crateris	3.3	11 13 32.517	+ 2.9960	− 14 9 3.83	− 19.460
	o Cephei S. P.	5.3	11 13 52.009	2.4417	+112 31 22.78	19.666
	τ Leonis	5.0	11 21 58.297	3.0862	+ 3 29 41.78	19.799
	λ Draconis	3.3	11 24 30.253	3.6274	+ 69 58 16.16	19.834
*	ξ Hydræ	4.0	11 27 17.827	2.9421	− 31 12 57.64	19.883
	υ Leonis	5.0	11 31 0.575	+ 3.0712	− 0 11 0.44	− 19.858
	γ Cephei S. P.	3.3	11 34 35.484	2.4114	+103 0 54.48	20.074
*	χ Ursæ Majoris	3.7	11 39 55.329	3.1924	+ 48 25 21.02	19.960
	β Leonis	2.0	11 43 8.546	3.0644	+ 15 13 13.56	20.118
	γ Ursæ Majoris	2.3	11 47 43.567	3.1841	+ 54 20 22.62	20.026
	Groombr. 4163 S. P.	7.0	11 49 12.033	+ 2.8602	+106 14 6.77	− 20.022
*	π Virginis	4.3	11 54 55.700	3.0752	+ 7 15 40.15	20.088
	o Virginis	4.0	11 59 17.994	3.0578	+ 9 22 38.22	20.016
*	ϵ Corvi	3.0	12 4 9.677	3.0789	− 21 58 29.54	20.041
	4 Draconis (H.)	4.7	12 6 45.458	2.8927	+ 78 15 39.12	20.023
	γ Corvi	2.0	12 9 50.491	+ 3.0789	− 16 53 52.09	− 20.019
*	2 Canum Venaticorum	5.3	12 10 18.689	3.0233	+ 41 18 21.85	20.067
	β Chamæleontis	5.0	12 11 33.905	3.3903	− 78 40 4.40	19.999
	η Virginis	3.3	12 13 58.289	3.0684	− 0 1 19.66	20.044
*	6 Ursæ Minoris	6.0	12 14 19.604	0.1015	+ 88 20 35.08	19.941
	α^1 Crucis	1.0	12 20 8.467	+ 3.2738	− 62 27 21.94	− 20.017
*	δ^2 Corvi	2.3	12 23 51.877	3.1019	− 15 52 9.50	20.088
*	β Canum Venaticorum	4.3	12 28 13.956	2.8606	+ 41 59 16.39	19.619
	β Corvi	2.3	12 28 17.700	3.1407	− 22 45 18.47	19.966
	κ Draconis	3.3	12 28 31.666	2.5948	+ 70 25 39.79	19.893
*	γ Virginis (*mean*)	2.7	12 35 46.982	+ 3.0381	− 0 48 47.51	− 19.816
	21 Cassiopeæ S. P.	6.0	12 38 0.099	3.8487	+105 38 46.46	19.757
*	31 Coronæ Borealis	5.0	12 46 2.943	2.9307	+ 28 10 19.26	19.666
	32^2 Camelopardalis (H.)	4.7	12 48 17.133	0.3810	+ 84 2 36.34	19.597
*	γ Cassiopeæ S. P.	2.0	12 49 42.816	3.5751	+119 54 42.44	19.570
	α Canum Venaticorum	2.7	12 50 36.066	+ 2.8163	+ 38 56 42.02	− 19.518
*	43 Cephei (H.) S. P.	4.3	12 53 4.993	7.1600	+ 94 21 57.04	19.517
*	δ Muscæ	4.0	12 54 18.435	4.0266	− 70 55 21.25	19.484
*	ϵ Virginis	2.7	12 56 24.175	2.9880	+ 11 34 58.14	19.423
	θ Virginis	4.3	13 3 56.644	3.1007	− 4 55 10.02	19.320
*	20 Canum Venaticorum	4.7	13 12 20.416	+ 2.6975	+ 41 11 0.73	− 19.043
	α Urs. Min. (*Polaris*) S. P.	2.0	13 16 14.291	22.3000	+ 91 18 35.13	18.954
	α Virginis (*Spica*)	1.0	13 19 4.946	3.1530	− 10 33 19.93	18.910
*	κ Octantis	5.0	13 22 22.781	8.5855	− 85 11 24.94	18.802
	38 Cassiopeæ S. P.	6.3	13 22 36.683	+ 4.3699	+110 19 58.81	− 18.689

MEAN PLACES FOR 1884.0. (January 0d.227, Washington.)

	Name of Star.	Magnitude.	Right Ascension.	Annual Variation.	Declination.	Annual Variation.
			h m s	s	° ′ ″	″
	ζ Virginis	3.3	13 28 46.958	+ 3.0528	− 0 0 8.78	− 18.528
*	B. A. C. 4536	5.0	13 29 36.973	+ 2.6828	+ 37 46 37.07	18.548
*	m Virginis	6.0	13 35 31.460	+ 3.1426	− 8 7 1.95	18.300
	η Ursæ Majoris	2.0	13 42 58.182	+ 2.3713	+ 49 53 32.95	18.088
	η Bootis	3.0	13 49 9.697	+ 2.8568	+ 18 58 46.70	18.182
	50 Cassiopeæ S. P.	4.0	13 53 32.803	+ 5.0008	+108 8 27.03	− 17.666
*	θ Apodis	5.0	13 54 3.832	+ 5.6587	− 76 14 7.89	17.614
	β Centauri	1.0	13 55 38.598	+ 4.1732	− 59 48 45.72	17.608
*	π Hydræ	3.7	13 59 46.137	+ 3.4066	− 26 7 23.38	17.518
	α Draconis	3.3	14 1 14.989	+ 1.6235	+ 64 55 49.52	17.306
*	d Bootis	5.0	14 5 6.541	+ 2.7388	+ 25 38 29.73	− 17.213
*	κ Virginis	4.3	14 6 42.526	+ 3.1932	− 9 43 59.82	16.943
*	δ Octantis	5.0	14 8 27.629	+ 8.9224	− 83 8 4.22	16.992
*	4 Ursæ Minoris	5.0	14 9 18.981	− 0.3311	+ 78 5 33.49	16.909
	α Bootis (*Arcturus*)	1.0	14 10 22.245	+ 2.7348	+ 19 47 12.43	18.895
*	λ Bootis	4.0	14 11 58.411	+ 2.2830	+ 46 37 16.81	− 16.671
*	λ Virginis	4.7	14 12 50.042	+ 3.2372	− 12 50 11.71	16.744
	ι Cassiopeæ S. P.	4.0	14 19 30.997	+ 4.8551	+113 7 12.46	16.456
	θ Bootis	4.0	14 21 14.919	+ 2.0442	+ 52 23 14.10	16.772
	ρ Bootis	3.7	14 26 49.898	+ 2.5878	+ 30 52 51.78	15.974
	5 Ursæ Minoris	4.7	14 27 46.958	− 0.1967	+ 76 12 41.92	− 16.011
	α^2 Centauri	1.0	14 31 44.779	+ 4.0420	− 60 21 30.31	15.395
*	α Apodis	4.7	14 33 30.262	+ 7.1591	− 78 33 1.19	15.734
*	33 Bootis	5.3	14 34 31.202	+ 2.2344	+ 44 54 19.72	15.723
	ε Bootis	2.3	14 39 55.315	+ 2.6213	+ 27 33 49.53	15.356
	α^2 Libræ	2.3	14 44 27.708	+ 3.3087	− 15 33 32.48	− 15.187
*	47 Cephei (H.) S. P.	6.0	14 50 42.566	+ 7.6971	+101 2 30.10	14.738
	β Ursæ Minoris	2.0	14 51 3.227	− 0.2366	+ 74 37 46.36	14.718
*	γ Scorpii	3.3	14 57 16.982	+ 3.5009	− 24 49 30.50	14.377
	β Bootis	3.0	14 57 34.617	+ 2.2601	+ 40 50 54.80	14.375
	48 Cephei (H.) S. P.	6.3	15 5 38.309	+ 7.3875	+102 41 36.53	− 13.775
	β Libræ	2.0	15 10 45.925	+ 3.2211	− 8 57 14.90	13.530
*	δ Bootis	3.0	15 10 49.601	+ 2.4208	+ 33 44 53.76	13.599
*	ρ Octantis	6.0	15 16 43.209	+12.9025	− 84 4 28.97	13.063
	μ^1 Bootis	4.0	15 20 6.520	+ 2.2662	+ 37 47 4.47	12.795
	γ^2 Ursæ Minoris	3.0	15 20 55.223	− 0.1377	+ 72 14 48.33	− 12.811
*	β Coronæ Borealis	4.0	15 23 2.807	+ 2.4750	+ 29 30 21.74	12.611
	α Coronæ Borealis	2.0	15 29 46.619	+ 2.5391	+ 27 6 20.53	12.323
*	γ Camelop. (H.) S. P.	4.3	15 38 7.714	+ 6.2297	+109 1 37.37	11.586
	α Serpentis	2.3	15 38 33.278	+ 2.9513	+ 6 47 28.59	11.572
	ε Serpentis	3.3	15 45 2.047	+ 2.9868	+ 4 49 39.84	− 11.070
	ζ Ursæ Minoris	4.3	15 48 13.479	− 2.2624	+ 78 9 2.72	10.907
	ε Coronæ Borealis	4.0	15 52 47.176	+ 2.4831	+ 27 12 51.96	10.630
	δ Scorpii	2.3	15 53 28.533	+ 3.5378	− 22 17 25.80	10.554
	β^1 Scorpii	2.0	15 58 41.589	+ 3.4800	− 19 29 13.01	10.164
*	δ^1 Apodis	5.3	16 3 3.053	+ 8.7375	− 78 24 0.49	− 9.776
*	φ Herculis	4.0	16 5 6.746	+ 1.8811	+ 45 14 22.28	9.595
	Groombridge 2320	6.3	16 6 0.350	+ 0.1376	+ 68 6 57.13	9.499
	δ Ophiuchi	3.0	16 8 16.026	+ 3.1392	− 3 23 40.98	9.537
*	σ Coronæ Borealis (*mean*)	5.7	16 10 20.025	+ 2.2445	+ 34 9 11.73	− 9.273

MEAN PLACES FOR 1884.0. (January 0d.227, Washington.)

	Name of Star.	Magnitude.	Right Ascension.	Annual Variation.	Declination.	Annual Variation.
			h m s	s	° ′ ″	″
*	γ Apodis	4.3	16 15 41.446	+ 8.9930	− 78 37 59.55	− 8.863
	τ Herculis	3.3	16 16 15.283	+ 1.8008	+ 46 35 23.96	8.749
*	η Ursæ Minoris	5.0	16 20 54.388	− 1.8226	+ 76 1 19.90	8.149
	α Scorpii (*Antares*)	1.3	16 22 17.748	+ 3.6693	− 26 10 24.34	8.330
	η Draconis	2.7	16 22 25.420	+ 0.8053	+ 61 46 37.02	8.228
	β Herculis	2.3	16 25 14.011	+ 2.5773	+ 21 44 35.39	− 8.076
	A Draconis	5.0	16 28 12.991	− 0.1372	+ 69 1 8.12	7.797
	ζ Ophiuchi	2.7	16 30 46.310	+ 3.2986	− 10 19 52.05	7.590
	α Trianguli Australis	2.0	16 36 23.572	+ 6.2986	− 68 48 44.59	7.211
	η Herculis	3.3	16 38 55.142	+ 2.0536	+ 39 8 36.44	7.037
	α Camelopardalis . S. P.	4.7	16 42 31.276	+ 5.9213	+113 51 23.10	− 6.650
	κ Ophiuchi	3.3	16 52 10.681	+ 2.8372	+ 9 33 22.61	5.854
	d Herculis	5.0	16 57 19.417	+ 2.2111	+ 33 44 12.90	5.414
	ε Ursæ Minoris	4.3	16 57 53.645	− 6.3484	+ 82 13 34.51	5.370
*	η Ophiuchi	2.7	17 3 43.525	+ 3.4366	− 15 34 48.63	4.765
	a^1 Herculis (*var.*)	3.5	17 9 21.505	+ 2.7333	+ 14 31 24.29	− 4.369
*	π Herculis	3.0	17 11 0.439	+ 2.0889	+ 36 56 25.70	4.246
*	θ Ophiuchi	3.3	17 14 53.146	+ 3.6787	− 24 52 57.16	3.973
	b Ophiuchi (*var.*)	5.0	17 19 17.188	+ 3.6587	− 24 4 2.33	3.675
*	δ Aræ	4.0	17 20 37.890	+ 5.4001	− 60 35 7.14	3.569
	Groombr. 966 . S. P.	6.3	17 24 13.562	+ 7.9967	+105 2 8.90	− 3.137
*	Groombr. 944 . S. P.	6.3	17 24 56.518	+18.6191	+ 94 51 55.39	3.067
	β Draconis	2.7	17 27 48.751	+ 1.3531	+ 52 23 15.22	2.808
	α Ophiuchi	2.0	17 29 33.002	+ 2.7827	+ 12 38 43.23	2.804
*	ι Herculis	3.3	17 36 11.521	+ 1.6964	+ 46 4 6.59	2.091
	ω Draconis	5.0	17 37 37.927	− 0.3544	+ 68 48 41.09	− 1.630
	μ Herculis	3.3	17 41 55.161	+ 2.3462	+ 27 47 20.98	2.339
	ψ^1 Draconis	4.3	17 44 0.155	− 1.0801	+ 72 12 19.26	1.672
*	θ Herculis	4.0	17 52 16.479	+ 2.0550	+ 37 15 59.34	0.967
	γ Draconis	2.3	17 53 54.765	+ 1.3913	+ 51 30 10.30	0.562
	γ^2 Sagittarii	3.3	17 58 21.378	+ 3.8514	− 30 25 27.02	− 0.363
*	o Herculis	4.0	18 3 1.070	+ 2.3393	+ 28 44 49.92	+ 0.267
	22 Camelop. (H.) . S. P.	4.7	18 6 3.497	+ 6.6179	+110 38 30.36	0.648
	μ Sagittarii	4.0	18 6 49.578	+ 3.5866	− 21 5 16.55	0.585
	δ Ursæ Minoris	4.3	18 9 44.395	−19.4505	+ 86 36 36.85	0.902
	η Serpentis	3.0	18 15 18.462	+ 3.1022	− 2 55 39.72	+ 0.664
*	λ Sagittarii	3.0	18 20 48.703	+ 3.7027	− 25 29 4.53	1.609
*	χ Draconis	4.0	18 23 8.812	− 1.0791	+ 72 40 55.62	1.645
	1 Aquilæ	4.3	18 28 53.685	+ 3.2645	− 8 19 27.08	2.192
*	ζ Pavonis	4.0	18 29 28.499	+ 7.0314	− 71 31 28.16	2.431
	σ Octantis	6.0	18 31 42.572	+107.4920	− 89 16 20.41	+ 2.747
	α Lyræ (*Vega*)	1.0	18 33 0.678	+ 2.0313	+ 38 40 34.40	3.152
	51 Cephei (H.) . S. P.	5.3	18 45 45.652	+30.0340	+ 92 46 30.54	4.070
	β Lyræ (*var.*)	4.0	18 45 47.852	+ 2.2142	+ 33 13 42.75	3.963
	σ Sagittarii	2.3	18 48 4.339	+ 3.7220	− 26 26 22.36	4.098
	50 Draconis	6.0	18 50 6.497	− 1.9050	+ 75 17 47.60	+ 4.424
*	γ Lyræ	3.3	18 54 36.280	+ 2.2443	+ 32 31 51.94	4.744
	ζ Aquilæ	3.0	19 0 4.724	+ 2.7569	+ 13 41 30.69	5.093
*	ι Lyræ	5.0	19 3 9.778	+ 2.1411	+ 35 55 8.11	5.466
*	25 Camelopardalis . S. P.	4.7	19 6 36.827	+12.9850	+ 97 22 8.57	+ 5.778

MEAN PLACES FOR 1884.0. (January 0^d.227, Washington.)

	Name of Star.	Magnitude.	Right Ascension.	Annual Variation.	Declination.	Annual Variation.
			h m s	s	° ′ ″	″
	d Sagittarii	5.0	19 10 50.851	+ 3.5126	− 19 9 29.54	+ 6.083
*	θ Lyræ	4.3	19 12 20.476	+ 2.0789	+ 37 55 39.31	6.226
	δ Draconis	3.0	19 12 31.559	+ 0.0308	+ 67 27 26.98	6.326
	τ Draconis	4.7	19 17 46.714	− 1.1138	+ 73 8 23.18	6.784
	Piazzi vii. 67 . S. P.	6.0	19 18 48.185	+ 6.3033	+111 17 57.73	6.797
	δ Aquilæ	3.3	19 19 38.976	+ 3.0253	+ 2 53 3.78	+ 6.906
*	β Cygni	3.0	19 26 2.607	+ 2.4193	+ 27 43 0.06	7.345
	κ Aquilæ	5.0	19 30 39.030	+ 3.2291	− 7 17 3.70	7.728
*	β Sagittæ	4.3	19 35 50.343	+ 2.6955	+ 17 12 28.34	8.115
	λ Ursæ Minoris	6.3	19 39 59.774	−63.3185	+ 88 57 11.18	8.485
	γ Aquilæ	3.0	19 40 44.696	+ 2.8522	+ 10 19 52.88	+ 8.526
*	δ Cygni	2.7	19 41 20.992	+ 1.8761	+ 44 50 52.97	8.618
	α Aquilæ (*Altair*)	1.3	19 45 7.421	+ 2.9277	+ 8 33 45.84	9.250
*	Groombr. 1374 . S. P.	5.7	19 46 17.254	+ 7.2958	+105 46 28.04	9.004
*	ϵ Pavonis	4.0	19 47 9.913	+ 7.0574	− 73 12 50.73	8.937
	ϵ Draconis	3.7	19 48 33.524	− 0.1768	+ 69 58 20.97	+ 9.175
	β Aquilæ	4.0	19 49 36.919	+ 2.9471	+ 6 7 3.96	8.738
*	γ Sagittæ	3.7	19 53 35.916	+ 2.6678	+ 19 10 40.17	9.576
*	c Sagittarii	5.0	19 55 31.392	+ 3.6957	− 28 1 52.52	9.705
	τ Aquilæ	6.0	19 58 28.431	+ 2.9332	+ 6 57 4.69	9.918
	3 Ursæ Majoris (H.) S.P.	5.7	20 1 15.521	+ 6.0555	+111 11 10.57	+ 10.120
*	θ Aquilæ	3.0	20 5 19.137	+ 3.0974	− 1 9 53.41	10.436
*	o^1 Cygni	4.3	20 9 58.749	+ 1.8893	+ 46 23 23.63	10.776
	a^2 Capricorni	3.0	20 11 37.087	+ 3.3326	− 12 54 12.55	10.894
	κ Cephei (*pr.*)	4.3	20 12 46.473	− 1.9141	+ 77 21 41.59	11.007
	α Pavonis	2.0	20 16 28.267	+ 4.7873	− 57 6 18.95	+ 11.157
	γ Cygni	2.3	20 18 4.015	+ 2.1536	+ 39 53 8.92	11.356
	π Capricorni	5.0	20 20 40.872	+ 3.4402	− 18 35 28.02	11.534
	ϵ Delphini	4.0	20 27 40.288	+ 2.8672	+ 10 54 35.24	12.023
	Groombridge 3241	6.3	20 30 29.970	− 0.2162	+ 72 8 19.01	12.223
*	α Delphini	3.7	20 34 14.999	+ 2.7878	+ 15 30 12.27	+ 12.504
*	β Pavonis	3.0	20 34 29.591	+ 5.4804	− 66 37 5.77	12.495
	α Cygni	1.7	20 37 28.673	+ 2.0443	+ 44 51 58.28	12.712
*	ψ Capricorni	4.3	20 39 13.484	+ 3.5594	− 25 41 12.82	12.668
*	ϵ Cygni	2.7	20 41 31.071	+ 2.4274	+ 33 32 10.06	13.325
	μ Aquarii	4.7	20 46 23.815	+ 3.2402	− 9 25 4.35	+ 13.270
	12 Year Cat. 1879	6.0	20 52 48.899	− 2.5320	+ 80 6 59.71	13.698
	ν Cygni	4.0	20 52 50.930	+ 2.2339	+ 40 43 15.52	13.712
	σ^2 Ursæ Majoris . S. P.	5.0	21 0 10.364	+ 5.3621	+112 23 44.66	14.246
	61^1 Cygni	5.0	21 1 41.864	+ 2.6830	+ 38 10 46.00	17.515
	ζ Cygni	3.0	21 7 59.948	+ 2.5494	+ 29 45 5.51	+ 14.599
*	τ Cygni	4.0	21 10 9.669	+ 2.3932	+ 37 33 2.20	15.250
	α Cephei	2.7	21 15 48.636	+ 1.4369	+ 62 5 39.44	15.165
	1 Pegasi	4.3	21 16 43.300	+ 2.7721	+ 19 18 31.30	15.227
*	ζ Capricorni	4.0	21 20 2.537	+ 3.4335	− 22 54 46.94	15.384
	1 Draconis (H.) . S. P.	4.3	21 20 27.657	+ 9.0418	+ 98 9 45.48	+ 15.406
	d Ursæ Majoris . S. P.	4.7	21 24 12.294	+ 5.4099	+109 39 39.38	15.535
	β Aquarii	3.0	21 25 27.128	+ 3.1621	− 6 4 51.36	15.647
	β Cephei (*pr.*)	3.0	21 27 9.535	+ 0.7960	+ 70 3 5.55	15.753
	ξ Aquarii	5.0	21 31 34.603	+ 3.1984	− 8 22 25.88	+ 15.957

MEAN PLACES FOR 1884.0. (January $0^d.227$, Washington.)

Name of Star.	Magnitude.	Right Ascension.	Annual Variation.	Declination.	Annual Variation.
		h m s	s	° ′ ″	″
* 74 Cygni	5.0	21 32 18.003	+ 2.4011	+ 39 53 33.36	+ 16.041
* λ^1 Octantis	5.3	21 32 59.380	9.8479	− 83 15 2.23	15.984
ϵ Pegasi	2.3	21 38 29.345	2.9467	+ 9 20 37.16	16.344
11 Cephei	5.0	21 40 13.220	0.9030	+ 70 46 38.83	16.535
* π^2 Cygni	4.3	21 42 30.502	2.2127	+ 48 46 23.51	16.534
μ Capricorni	5.0	21 46 58.270	+ 3.2767	− 14 5 50.23	+ 16.767
* 16 Pegasi	5.3	21 47 47.055	2.7275	+ 25 22 47.04	16.808
79 Draconis	6.3	21 51 25.255	0.7317	+ 73 9 12.98	17.010
α Aquarii	3.0	21 59 49.550	3.0829	− 0 52 58.66	17.345
α Gruis	2.0	22 0 55.048	3.8086	− 47 31 19.16	17.234
* π Pegasi	4.0	22 4 50.177	+ 2.6596	+ 32 36 33.89	+ 17.571
* υ Octantis	6.0	22 9 5.367	13.3676	− 86 33 19.33	17.836
32 Ursæ Majoris . S. P.	6.0	22 9 35.905	4.4270	+ 114 18 49.45	17.796
θ Aquarii	4.3	22 10 42.735	3.1695	− 8 21 37.76	17.792
* γ Aquarii	3.3	22 15 39.855	3.1010	− 1 58 17.56	18.030
π Aquarii	4.7	22 19 21.189	+ 3.0648	+ 0 47 20.87	+ 18.146
* σ Aquarii	5.0	22 24 30.397	3.1762	− 11 16 16.19	18.309
9 Draconis (H.) . S. P.	4.7	22 25 12.648	5.2779	+ 103 41 24.56	18.378
* α Lacertæ	4.0	22 26 30.803	2.4613	+ 49 41 10.71	18.408
η Aquarii	4.0	22 29 23.729	3.0838	− 0 42 54.23	18.449
226 Cephei (B.)	5.3	22 30 14.067	+ 1.0793	+ 75 37 43.20	+ 18.526
* 10 Lacertæ	5.0	22 34 3.418	2.6858	+ 38 26 48.25	18.662
* β Octantis	4.7	22 34 7.482	6.5200	− 81 59 19.37	18.664
ζ Pegasi	3.3	22 35 40.622	2.9908	+ 10 13 34.00	18.699
* λ Pegasi	4.0	22 40 56.648	2.8847	+ 22 57 19.59	18.867
ι Cephei	3.3	22 45 33.074	+ 2.1206	+ 65 35 25.40	+ 18.872
λ Aquarii	4.0	22 46 33.773	3.1331	− 8 11 47.54	19.068
* Groombr. 1706 . S. P.	6.0	22 50 38.479	4.9870	+ 101 36 31.47	19.170
α Pis. Aus. (*Fomalhaut*)	1.3	22 51 14.329	3.3260	− 30 14 12.26	18.987
α Ursæ Majoris . S. P.	2.0	22 56 33.643	3.7518	+ 117 37 22.84	19.357
* o Andromedæ	3.7	22 56 35.100	+ 2.7489	+ 41 42 9.29	+ 19.282
α Pegasi (*Markab*)	2.0	22 58 58.986	2.9847	+ 14 34 52.63	19.296
* φ Aquarii	4.3	23 8 18.905	3.1090	− 6 40 26.78	19.354
o Cephei	5.3	23 13 52.009	2.4417	+ 67 28 37.22	19.666
* τ Pegasi	4.7	23 14 53.764	2.9629	+ 23 6 19.44	19.652
θ Piscium	4.7	23 22 5.035	+ 3.0410	+ 5 44 30.51	+ 19.724
λ Draconis . S. P.	3.3	23 24 30.253	3.6274	+ 110 1 43.84	19.834
* λ Andromedæ	4.0	23 31 53 337	2.9206	+ 45 49 46.17	19.470
ι Piscium	4.3	23 33 59.050	3.0840	+ 4 59 51.50	19.481
γ Cephei	3.3	23 34 35.484	2.4114	+ 76 59 5.52	20.074
* i^1 Aquarii	5.0	23 38 11.097	+ 3.1175	− 18 55 14.20	+ 19.957
* δ Sculptoris	4.3	23 42 52.981	3.1334	− 28 46 17.05	19.855
* γ^1 Octantis	5.3	23 45 15.178	3.7078	− 82 39 48.54	19.991
Groombridge 4163	7.0	23 49 12.033	2.8602	+ 73 45 53.23	20.022
ω Piscium	4.0	23 53 21.302	3.0781	+ 6 13 15.84	19.930
* 33 Piscium	5.0	23 59 23.886	+ 3.0709	− 6 21 23.19	+ 20.144

APPARENT RIGHT ASCENSIONS AND APPROXIMATE NORTH POLAR DISTANCES, FOR TRANSIT AT WASHINGTON.

Mean Solar Date.	β Cassiop.	22 Androm.	σ Androm.	ι Ceti.	6 Urs. Min., S. P.	44 Piscium.	π Androm.	ο Cassiop.
	31° 30′	44° 35′	53° 52′	99° 29′	358° 21′	88° 43′	56° 56′	42° 22′
	h m 0 2	h m 0 4	h m 0 12	h m 0 13	h m 0 13	h m 0 19	h m 0 30	h m 0 38
	s	s	s	s	s	s	s	s
(Dec. 30.3)	50.87 − .34	9.26 − .21	7.78 − .13	22.68 − .10	81.47 +7 40	19.13 − .14	32.77 − .20	7.16 − .22
Jan. 9.2	50.55 .30	9.06 .19	7.65 .15	22.58 .10	88.85 7.28	19.01 .11	32.58 .17	6.94 .22
19.2	50.27 .27	8.88 .18	7.48 .16	22.47 .11	95.99 6.90	18.93 .09	32.45 .14	6.71 .21
29.1	50.01 − .25	8.70 − .17	7.33 − .15	22.35 − .12	102.61 +6.32	18.84 − .08	32.31 − .12	6.51 − .19
. .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Aug. 26.6	55.57 + .25	13.21 + .18	11.40 + .18	25.90 + .17	37.73 −3.36	22.31 + .16	36.15 + .20	10.87 + .25
Sept. 5.6	55.79 .19	13.38 .15	11.57 .15	26.05 .13	34.84 2 41	22.46 .14	36.34 .18	11.10 .21
15.5	55.94 .11	13.51 .11	11.70 .11	26.15 .09	32.94 1.40	22.59 .09	36.49 .13	11.28 .16
25.5	56.01 + .05	13.58 .06	11.78 .06	26.23 .07	32.08 − .32	22.65 .06	36.58 .08	11.42 .11
Oct. 5.5	56.04 .00	13.62 + .01	11.82 + .03	26.28 + .02	32.34 + .81	22.70 + .03	36.65 .05	11.49 .06
15.4	56.01 − .07	13.60 − .03	11.83 − .01	26.27 − .01	33.69 +1.89	22.72 .00	36.68 + .01	11.53 + .02
25.4	55.91 .12	13.55 .08	11.80 .05	26.25 .03	36.11 2.98	22.70 − .03	36.67 − .02	11.52 − .03
Nov. 4.4	55.77 .17	13.45 .11	11.74 .08	26.21 .06	39.66 4.80	22.66 .05	36.65 .04	11.48 .07
14.4	55.58 .21	13.32 .14	11.64 .10	26.13 .09	44.20 5.00	22.60 .07	36.58 .08	11.38 .11
24.3	55.35 .24	13.17 .16	11.53 .12	26.03 .10	49.63 5.85	22.52 .09	36.48 .11	11.26 .14
Dec. 4.3	55.10 − .27	13.01 − .18	11.40 − .14	25.93 − .11	55.88 +6.62	22.41 − .10	36.37 − .12	11.10 − .16
14.3	54.81 .30	12.82 .19	11.25 .15	25.81 .12	62.71 7.08	22.31 .10	36.24 .13	10.94 .18
24.3	54.49 .31	12.62 .20	11.09 .16	25.69 .12	69.97 7.40	22.21 .11	36.10 .15	10.74 .20
34.2	54.19 − .29	12.41 − .21	10.93 − .16	25.57 − .12	77.38 +7.46	22.10 − .11	35.94 − .16	10.53 − .21

Mean Solar Date.	δ Piscium.	γ Cassiop.	μ Androm.	43 Cephei.	f Piscium.	κ Tucanæ.	κ Octantis, S. P.	υ Androm.
	83° 3′	29° 55′	52° 8′	4° 23′	87° 0′	159° 30′	184° 49′	49° 11′
	h m 0 42	h m 0 49	h m 0 50	h m 0 52	h m 1 11	h m 1 11	h m 1 22	h m 1 29
	s	s	s	s	s	s	s	s
(Dec. 30.3)	31.66 − .11	33.62 − .32	10.39 − .19	48.33 −2.72	40.96 − .12	45.04 − .58	57.49 +2.94	50.71 − .16
Jan. 9.2	31.55 .11	33.30 .33	10.21 .18	45.61 2.71	40.84 .12	44.47 .56	60.44 2.95	50.54 .18
19.2	31.43 .12	32.97 .32	10.06 .17	42.91 2.67	40.72 .12	43.92 .55	63.38 2.89	50.36 .20
29.2	31.32 − .11	32.66 − .30	9.88 − .17	40.27 −2.60	40.60 − .12	43.38 − .53	66.19 +2.73	50.14 − .23
. .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Sept. 5.6	34.85 + .15	38.18 + .26	13.94 + .20	67.01 +1.63	43.85 + .20	48.39 + .36	55.63 −1.50	53.97 + .26
15.5	34.99 .13	38.42 .22	14.13 .17	68.42 1.20	44.03 .16	48.71 .28	54.35 1.06	54.21 .22
25.5	35.08 .08	38.62 .15	14.26 .11	69.40 .77	44.16 .11	48.95 .20	53.52 .61	54.40 .17
Oct. 5.5	35.15 .06	38.72 .09	14.35 .07	69.97 + .36	44.25 .08	49.10 .10	53.14 − .14	54.55 .13
15.5	35.20 + .03	38.79 + .04	14.40 + .04	70.11 − .08	44.31 .05	49.16 + .01	53.25 + .36	54.65 .09
25.4	35.20 − .01	38.79 − .03	14.42 .00	69.81 − .51	44.35 + .02	49.13 − .08	53.87 + .86	54.72 + .06
Nov. 4.4	35.18 .03	38.72 .09	14.40 − .04	69.08 .95	44.35 − .01	48.99 .18	54.97 1.35	54.77 + .02
14.4	35.15 .05	38.61 .15	14.35 .07	67.92 1.36	44.33 .03	48.78 .27	56.57 1.80	54.76 − .03
24.3	35.08 .07	38.43 .20	14.26 .10	66.37 1.74	44.29 .06	48.45 .36	58.56 2.18	54.72 .06
Dec. 4.3	35.00 .09	38.22 .23	14.15 .12	64.44 2.09	44.22 .07	48.06 .43	60.93 2.51	54.64 .10
14.3	34.90 − .10	37.97 − .28	14.02 − .13	62.19 −2.37	44.15 − .09	47.59 − .51	63.57 +2.74	54.53 − .13
24.3	34.79 .11	37.66 .31	13.88 .15	59.70 2.58	44.05 .10	47.04 .56	66.40 2.89	54.39 .15
34.2	34.68 − .11	37.35 − .30	13.72 − .16	57.04 −2.73	43.94 − .11	46.47 − .58	69.33 +2.95	54.23 − .17

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Mean Solar Date.	π Piscium.	ν Piscium.	ζ Ceti.	γ Androm.	β Trianguli.	4 Urs. Min., S. P.	γ Trianguli.	67 Ceti.
	78° 28′	85° 7′	100° 55′	48° 14′	55° 34′	348° 6′	56° 42′	91° 58′
	h m 1 30	h m 1 35	h m 1 45	h m 1 56	h m 2 2	h m 2 9	h m 2 10	h m 2 11
	s	s	s	s	s	s	s	s
(Dec. 30.3)	48.94 − .11	15.80 − .12	36.63 − .11	37.89 − .16	29.84 − .13	16.99 + .99	16.50 − .12	4.45 − .09
Jan. 9.3	48.82 .12	15.68 .12	36.51 .12	37.72 .17	29.70 .14	18.01 1.06	16.37 .15	4.35 .11
19.2	48.70 .13	15.56 .12	36.39 .13	37.55 .18	29.55 .16	19.10 1.11	16.21 .16	4.23 .13
29.2	48.57 .12	15.43 .12	36.24 .14	37.35 .20	29.38 .17	20.22 1.11	16.05 .17	4.09 .14
Feb. 8.2	48.45 .12	15.31 .11	36.10 .14	37.15 .19	29.20 .17	21.31 1.07	15.88 .17	3.95 .14
18.2	48.32 − .12	15.20 − .11	35.97 − .13	36.97 − .18	29.04 − .16	22.36 +1.02	15.70 − .18	3.80 − .15
. .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Sept. 15.6	52.08 + .14	18.85 + .12	39.46 + .15	41.42 + .20	33.15 + .19	13.75 − .58	19.71 + .20	7.11 + .17
Oct. 5.6	52.21 .11	18.96 .10	39.60 .11	41.61 .18	33.33 .17	13.24 .44	19.90 .18	7.27 .14
15.5	52.28 .07	19.05 .09	39.68 .08	41.76 .13	33.48 .13	12.88 .98	20.06 .15	7.38 .10
25.5	52.34 + .04	19.11 + .06	39.76 + .06	41.86 + .09	33.58 + .09	12.69 − .11	20.18 + .10	7.47 + .08
Nov. 4.5	52.37 + .02	19.15 + .02	39.80 + .02	41.93 .05	33.66 .06	12.67 + .07	20.25 .07	7.53 .04
14.4	52.38 − .01	19.15 − .01	39.80 − .01	41.96 + .02	33.70 + .02	12.83 .26	20.31 + .03	7.55 + .02
24.4	52.34 .04	19.13 .04	39.78 .03	41.97 − .02	33.71 − .01	13.19 .44	20.32 − .01	7.56 − .01
Dec. 4.4	52.30 .06	19.08 .06	39.73 .05	41.92 .07	33.62 .05	13.72 .61	20.30 .04	7.54 .04
14.4	52.23 − .09	19.02 − .08	39.67 − .08	41.83 − .11	33.62 − .08	14.42 + .78	20.25 − .08	7.49 − .07
24.3	52.13 .10	18.92 .10	39.57 .11	41.71 .14	33.52 .12	15.27 .92	20.15 .11	7.40 .09
34.3	52.03 − .11	18.81 − .11	39.45 − .12	41.56 − .16	33.39 − .14	16.25 +1.04	20.03 − .12	7.29 − .10

Mean Solar Date.	δ Hydri.	δ Ceti.	μ Hydri.	θ Persei.	σ Arietis.	47 Cephei.	ε Arietis.	β Persei, (*Algol.*)
	159° 12′	90° 11′	169° 37′	41° 16′	75° 24′	11° 3′	69° 8′	49° 30′
	h m 2 19	h m 2 33	h m 2 34	h m 2 36	h m 2 44	h m 2 50	h m 2 52	h m 3 0
	s	s	s	s	s	s	s	s
(Dec. 30.3)	40.00 − .55	24.77 − .10	16.36 −1.14	7.18 − .15	57.35 − .08	26.43 − .68	26.59 − .09	28.20 − .09
Jan. 9.3	39.44 .57	24.66 .11	15.18 1.22	7.01 .19	57.26 .11	25.67 .82	26.49 .11	28.09 .13
19.3	38.86 .58	24.55 .13	13.93 1.26	6.81 .22	57.13 .13	24.78 .93	26.37 .13	27.94 .17
29.3	38.27 .59	24.41 .14	12.66 1.27	6.58 .23	57.00 .14	23.81 .99	26.23 .14	27.75 .19
Feb. 6.2	37.69 .58	24.27 .14	11.40 1.25	6.35 .23	56.85 .15	22.80 1.03	26.08 .15	27.55 .20
18.2	37.12 − .57	24.12 − .15	10.16 −1.21	6.10 − .24	56.70 − .15	21.76 −1.05	25.93 − .15	27.35 − .20
. .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Sept. 25.6	41.93 + .33	27.30 + .19	17.09 + .66	10.63 + .28	59.98 + .21	33.37 + .94	29.25 + .22	31.19 + .27
Oct. 5.6	42.22 .25	27.48 .16	17.67 .49	10.90 .25	60.18 .18	34.24 .80	29.46 .20	31.45 .25
15.5	42.42 .15	27.62 .13	18.06 .28	11.13 .21	60.34 .15	34.97 .66	29.65 .17	31.68 .22
25.5	42.51 + .04	27.74 + .10	18.22 + .05	11.32 + .17	60.48 + .12	35.55 + .51	29.80 + .14	31.88 + .18
Nov. 4.5	42.50 − .07	27.82 .07	18.16 − .17	11.46 .11	60.58 .09	35.98 .32	29.92 .10	32.04 .13
14.5	42.37 .19	27.88 .05	17.88 .39	11.54 .07	60.66 .07	36.19 + .13	30.00 .07	32.14 .10
24.4	42.13 .28	27.91 + .02	17.38 .60	11.59 + .02	60.71 + .03	36.24 − .05	30.06 + .04	32.23 + .06
Dec. 4.4	41.81 .36	27.91 − .02	16.69 .78	11.58 − .03	60.72 − .01	36.09 .25	30.08 .00	32.25 .00
14.4	41.41 − .44	27.88 − .05	15.82 − .95	11.53 − .09	60.70 − .03	35.74 − .44	30.07 − .03	32.24 − .03
24.4	40.94 .50	27.82 .08	14.79 1.08	11.41 .13	60.66 .06	35.20 .62	30.03 .06	32.19 .08
34.3	40.41 − .56	27.73 − .10	13.66 −1.17	11.27 − .15	60.58 − .09	34.51 − .75	29.96 − .08	32.08 − .14

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Mean Solar Date.	ρ Octantis, S. P.	ι Hydri.	f Tauri.	γ Camelop.	γ Hydri.	ε Persei.	A^1 Tauri.	c Persei.
	185° 56′ h m 3 16	167° 49′ h m 3 18	77° 28′ h m 3 24	19° 2′ h m 3 37	164° 36′ h m 3 49	50° 20′ h m 3 49	68° 15′ h m 3 57	42° 36′ h m 4 0
	s	s	s	s	s	s	s	s
(Dec. 30.4)	0.87 +2.94	60.47 − .89	20.30 − .06	54.33 − .98	9.16 − .62	54.99 − .06	42.07 − .02	4.68 − .07
Jan. 9.3	3.16 2.34	59.53 .99	20.22 .10	54.01 .37	8.49 .72	54.91 .10	42.02 .08	4.59 .12
19.3	5.56 2.46	58.50 1.06	20.10 .13	53.60 .45	7.73 .80	54.78 .14	41.92 .11	4.45 .16
29.3	8.08 2.53	57.41 1.10	19.96 .15	53.11 .52	6.90 .86	54.63 .17	41.80 .14	4.28 .20
Feb. 8.2	10.61 2.53	56.30 1.11	19.81 .16	52.56 .56	6.03 .90	54.44 .20	41.65 .16	4.06 .23
18.2	13.13 +2.48	55.20 −1.09	19.65 − .16	51.99 − .58	5.11 − .91	54.23 − .21	41.49 − .17	3.82 − .25
28.2	15.56 +2.37	54.12 −1.07	19.49 − .15	51.41 − .58	4.21 − .89	54.01 − .22	41.31 − .18	3.56 − .26
. .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Oct. 5.6	9.46 −1.09	59.78 + .60	22.83 + .22	58.98 + .62	7.86 + .58	57.80 + .30	44.48 + .26	7.62 + .33
15.6	8.56 .71	60.30 .44	23.04 .19	59.56 .54	8.38 .46	58.09 .27	44.73 .24	7.94 .31
25.5	8.04 − .32	60.65 + .25	23.21 + .16	60.06 + .46	8.78 + .33	58.34 + .24	44.95 + .20	8.23 + .27
Nov. 4.5	7.93 + .11	60.80 + .06	23.35 .14	60.48 .37	9.04 .19	58.56 .20	45.13 .18	8.48 .24
14.5	8.27 .54	60.77 − .12	23.48 .11	60.79 .26	9.15 + .04	58.73 .16	45.30 .15	8.70 .20
24.5	9.01 .94	60.55 .31	23.56 .07	61.00 .14	9.12 − .10	58.88 .12	45.43 .11	8.87 .14
Dec. 4.4	10.16 1.34	60.15 .49	23.61 + .03	61.08 + .04	8.94 .26	58.97 .07	45.51 .07	8.98 .09
14.4	11.70 +1.70	59.57 − .66	23.62 .00	61.07 − .08	8.61 − .41	59.02 + .02	45.56 + .03	9.05 + .04
24.4	13.55 1.98	58.83 .81	23.61 − .03	60.92 .21	8.12 .54	59.02 − .02	45.58 .00	9.05 − .02
34.4	15.65 +2.20	57.96 − .93	23.56 − .06	60.65 − .33	7.54 − .60	58.98 − .05	45.56 − .03	9.01 − .06

Mean Solar Date.	o^1 Eridani.	η Urs. Min., S. P.	m Persei.	δ Menæ.	τ Tauri.	i Tauri.	ζ Aurigæ.	β Eridani.
	97° 9′ h m 4 6	346° 2′ h m 4 20	47° 11′ h m 4 25	170° 29′ h m 4 25	67° 16′ h m 4 35	71° 22′ h m 4 44	49° 6′ h m 4 54	95° 14′ h m 5 2
	s	s	s	s	s	s	s	s
(Dec. 30.4)	5.52 − .03	54.44 + .44	5.74 − .02	69.03 − .90	8.72 + .03	27.31 + .01	12.80 + .02	2.27 + .01
Jan. 9.3	5.47 .07	54.97 .61	5.69 .08	68.03 1.09	8.73 − .02	27.30 − .03	12.79 − .04	2.26 − .03
19.3	5.38 .11	55.66 .75	5.59 .13	66.85 1.25	8.67 .09	27.25 .08	12.73 .10	2.21 .08
29.3	5.26 .14	56.46 .84	5.44 .16	65.53 1.37	8.55 .12	27.15 .12	12.60 .15	2.10 .12
Feb. 8.3	5.11 .16	57.33 .90	5.27 .20	64.11 1.45	8.42 .15	27.01 .15	12.44 .18	1.98 .14
18.2	4.95 − .17	58.26 + .95	5.05 − .23	62.64 −1.49	8.26 − .17	26.86 − .16	12.24 − .21	1.83 − .16
28.2	4.77 .17	59.22 .94	4.82 .23	61.13 1.50	8.08 .18	26.69 .17	12.02 .23	1.66 .17
Mar. 10.2	4.60 − .16	60.13 + .86	4.59 − .22	59.65 −1.45	7.90 − .18	26.51 − .18	11.79 − .23	1.48 − .18
. .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Oct. 15.6	7.63 + .21	53.55 − .75	8.66 + .30	64.43 + .96	11.17 + .27	29.59 + .26	15.43 + .33	4.03 + .23
25.6	7.83 + .19	52.87 − .61	8.95 + .29	65.20 + .67	11.43 + .25	29.84 + .24	15.75 + .31	4.26 + .23
Nov. 4.5	8.01 .16	52.33 .47	9.23 .26	65.77 .45	11.66 .21	30.07 .22	16.04 .28	4.49 .21
14.5	8.15 .13	51.94 .32	9.46 .22	66.10 + .21	11.85 .18	30.28 .19	16.31 .25	4.67 .18
24.5	8.27 .10	51.70 − .14	9.66 .17	66.19 − .04	12.02 .16	30.45 .15	16.54 .20	4.85 .16
Dec. 4.5	8.34 .05	51.65 + .03	9.80 .11	66.02 .30	12.16 .11	30.58 .12	16.71 .15	4.99 .12
14.4	8.37 + .02	51.76 + .20	9.88 + .06	65.59 − .54	12.23 + .06	30.68 + .08	16.84 + .10	5.07 + .07
24.4	8.38 − .01	52.05 .37	9.89 + .02	64.94 .76	12.28 + .03	30.73 + .04	16.92 .06	5.13 + .04
34.4	8.35 − .04	52.51 + .54	9.92 − .03	64.06 −1.00	12.29 − .01	30.75 .00	16.95 + .01	5.15 .00

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Mean Solar Date.	τ Orionis.	Groombr. 944.	χ Aurigæ.	κ Orionis.	ν Aurigæ.	δ Doradus.	β Aurigæ.	θ Aurigæ.
	96° 58′ h m 5 11	4° 52′ h m 5 24	57° 54′ h m 5 25	99° 43′ h m 5 42	50° 53′ h m 5 43	155° 47′ h m 5 44	45° 4′ h m 5 50	52° 48′ h m 5 51
	s	s	s	s	s	s	s	s
(Dec. 30.4)	51.99 + .02	22.71 − .20	1.95 + .05	9.07 + .05	17.70 + .07	37.06 − .13	51.43 + .09	39.54 + .09
Jan. 9.4	51.99 − .02	22.26 .70	1.98 .00	9.10 .00	17.75 + .01	36.88 .23	51.49 + .03	39.60 + .03
19.4	51.95 .06	21.31 1.17	1.96 − .05	9.07 − .05	17.74 − .04	36.60 .32	51.48 − .04	39.60 − .03
29.4	51.87 .11	19.92 1.59	1.89 .11	9.01 .09	17.67 .10	36.24 .40	51.40 .10	39.54 .09
Feb. 8.3	51.72 .14	18.13 1.94	1.75 .15	8.89 .13	17.55 .14	35.81 .47	51.28 .15	39.43 .13
18.3	51.58 − .16	16.04 −2.20	1.59 − .17	8.75 − .15	17.39 − .18	35.30 − .52	51.10 − .20	39.28 − .18
28.3	51.41 .17	13.74 2.36	1.41 .18	8.59 .17	17.19 .21	34.77 .55	50.88 .23	39.08 .21
Mar. 10.3	51.23 .18	11.33 2.42	1.21 .20	8.41 .18	16.97 .22	34.20 .57	50.64 .25	38.87 .21
20.2	51.05 − .18	8.91 −2.42	1.00 − .21	8.23 − .18	16.75 − .22	33.63 − .56	50.39 − .25	38.66 − .20
. .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Oct. 25.6	53.90 + .24	32.58 +2.57	4.49 + .30	10.76 + .26	20.25 + .35	35.88 + .47	54.05 + .39	42.00 + .34
Nov. 4.6	54.13 .22	35.00 2.25	4.78 .28	11.01 .24	20.59 .32	36.32 .41	54.42 .35	42.33 .31
14.6	54.33 .19	37.08 1.92	5.04 .25	11.23 .21	20.88 .29	36.69 .32	54.75 .32	42.62 .29
24.5	54.51 .16	38.84 1.54	5.27 .21	11.43 .19	21.16 .26	36.96 .23	55.05 .28	42.90 .26
Dec. 4.5	54.65 .12	40.16 1.09	5.46 .18	11.60 .16	21.40 .21	37.15 .13	55.31 .24	43.14 .22
14.5	54.74 + .08	41.01 + .60	5.64 + .14	11.74 + .11	21.58 + .16	37.22 + .03	55.53 + .19	43.34 + .17
24.5	54.80 .05	41.36 + .10	5.73 .08	11.81 .06	21.71 .11	37.21 − .07	55.68 .12	43.48 .12
34.4	54.83 + .02	41.20 − .41	5.80 + .03	11.86 + .03	21.79 + .06	37.08 − .17	55.76 + .05	43.57 + .06

Mean Solar Date.	η Geminor.	ψ¹ Aurigæ.	ν Geminor.	χ Draconis, S. P.	ε Geminor.	ψ⁵ Aurigæ.	θ Geminor.	ζ Mensæ.
	67° 28′ h m 6 7	40° 39′ h m 6 15	69° 43′ h m 6 21	342° 41′ h m 6 23	64° 45′ h m 6 36	46° 18′ h m 6 38	55° 54′ h m 6 44	170° 41′ h m 6 49
	s	s	s	s	s	s	s	s
(Dec. 30.5)	44.42 + .09	47.68 + .11	56.53 + .09	7.10 + .04	39.41 + .11	13.01 + .13	59.74 + .12	62.32 − .14
Jan. 9.5	44.49 + .05	47.77 + .06	56.60 + .05	7.20 .16	39.50 .07	13.12 .08	59.85 .09	62.05 .40
19.4	44.51 − .01	47.79 − .01	56.63 .00	7.41 .30	39.55 + .01	13.17 + .02	59.92 + .04	61.53 .64
29.4	44.47 .06	47.74 .08	56.61 − .04	7.81 .44	39.54 − .04	13.15 − .04	59.92 − .02	60.77 .87
Feb. 8.4	44.39 .11	47.62 .15	56.55 .10	8.31 .53	39.48 .09	13.08 .11	59.87 .09	59.80 1.07
18.4	44.26 − .14	47.45 − .20	56.42 − .14	8.87 + .62	39.37 − .12	12.94 − .16	59.75 − .14	58.64 −1.23
28.3	44.11 .16	47.23 .24	56.28 .16	9.55 .72	39.24 .16	12.76 .20	59.60 .17	57.34 1.36
Mar. 10.3	43.94 .18	46.97 .27	56.11 .18	10.30 .75	39.06 .18	12.55 .22	59.42 .19	55.92 1.46
20.3	43.75 .19	46.70 .27	55.93 .18	11.05 .76	38.88 .19	12.32 .24	59.22 .20	54.43 1.51
30.3	43.57 .18	46.42 .27	55.75 .18	11.82 .77	38.69 .18	12.07 .24	59.02 .21	52.91 1.52
Apr. 9.2	43.39 − .17	46.16 − .25	55.58 − .17	12.58 + .75	38.51 − .17	11.83 − .23	58.80 − .22	51.39 −1.51
. .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Nov. 14.6	47.08 + .27	50.97 + .38	59.06 + .28	7.43 − .56	41.96 + .31	15.96 + .37	62.45 + .34	55.73 + .99
24.6	47.34 .24	51.33 .33	59.33 .25	6.92 .46	42.25 .27	16.31 .33	62.77 .30	56.61 .77
Dec. 4.6	47.56 .21	51.63 .28	59.56 .22	6.52 .33	42.50 .24	16.61 .29	63.04 .26	57.27 .54
14.5	47.75 + .17	51.89 + .23	59.76 + .18	6.26 − .20	42.73 + .20	16.88 + .25	63.29 + .23	57.69 + .39
24.5	47.89 .12	52.09 .17	59.92 .13	6.12 − .07	42.90 .16	17.10 .19	63.49 .18	57.85 + .03
34.5	47.98 + .07	52.22 + .10	60.02 + .08	6.13 + .08	43.04 + .12	17.25 + .12	63.64 + .13	57.74 − .94

APPARENT RIGHT ASCENSIONS AND APPROXIMATE NORTH POLAR DISTANCES, FOR TRANSIT AT WASHINGTON.

Mean Solar Date.	ζ Geminor.	63 Aurigæ.	25 Camelop.	γ² Volantis.	β Can. Min.	Groombr. 1374.	26 Lyncis.	ω¹ Cancri.
	69° 15′	50° 29′	7° 22′	160° 18′	81° 28′	15° 46′	42° 8′	64° 17′
	h m 6 57	h m 7 3	h m 7 6	h m 7 9	h m 7 20	h m 7 45	h m 7 46	h m 7 53
	s	s	s	s	s	s	s	s
(Dec. 30.5)	5.76 + .13	31.32 + .17	12.75 + .68	49.16 + .05	44.31 + .15	62.59 + .52	6.03 + .94	46.50 + .20
Jan. 9.5	5.87 .09	31.47 .12	13.24 + .30	49.15 − .07	44.44 .11	63.01 .32	6.24 .18	46.68 .16
19.5	5.94 + .04	31.55 + .05	13.35 − .05	49.02 .20	44.52 + .05	63.23 + .15	6.39 .11	46.81 .10
29.5	5.95 − .01	31.56 − .01	13.13 .39	48.76 .31	44.55 .00	63.30 − .01	6.46 + .04	46.87 + .04
Feb. 8.4	5.92 .06	31.52 .07	12.58 .71	48.40 .42	44.53 − .05	63.20 .18	6.46 − .03	46.89 − .01
18.4	5.83 − .11	31.42 − .13	11.72 − .99	47.93 − .51	44.46 − .09	62.93 − .33	6.40 − .10	46.85 − .06
28.4	5.69 .14	31.27 .17	10.60 1.23	47.39 .58	44.35 .12	62.54 .46	6.25 .17	46.77 .11
Mar. 10.3	5.55 .16	31.08 .20	9.27 1.42	46.78 .64	44.22 .14	62.00 .58	6.07 .20	46.64 .15
20.3	5.38 .17	30.87 .22	7.78 1.52	46.12 .67	44.07 .16	61.39 .64	5.86 .23	46.48 .17
30.3	5.20 .18	30.65 .22	6.24 1.57	45.44 .68	43.90 .17	60.71 .70	5.61 .26	46.31 .17
Apr. 9.3	5.02 − .18	30.43 − .22	4.65 −1.56	44.75 − .68	43.73 − .16	60.00 − .71	5.35 − .26	46.14 − .17
19.2	4.85 − .17	30.23 − .18	3.12 −1.48	44.08 − .66	43.57 − .15	59.29 − .69	5.09 − .25	45.97 − .16
. .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Nov. 24.6	8.44 + .27	34.37 + .31	20.67 +1.62	47.83 + .50	46.67 + .27	66.66 + .68	9.00 + .42	49.02 + .31
Dec. 4.6	8.70 .25	34.67 .29	22.19 1.41	48.27 .38	46.93 .25	67.50 .80	9.40 .39	49.32 .29
14.6	8.93 + .21	34.95 + .26	23.49 +1.15	48.59 + .26	47.17 + .22	68.26 + .69	9.77 + .33	49.60 + .27
24.6	9.12 .17	35.19 .21	24.48 .83	48.80 + .14	47.37 .18	68.88 .56	10.05 .27	49.86 .24
34.5	9.26 + .12	35.37 + .15	25.15 + .51	48.87 .00	47.53 + .14	69.38 + .44	10.31 + .21	50.07 + .19

Mean Solar Date.	ζ¹ Cancri.	β Cancri.	30 Monocerotis.	θ Chamæleontis.	σ Hydræ.	γ Cancri.	σ³ Cancri, (*mean*).	θ Hydræ.
	72° 0′	80° 27′	93° 31′	167° 6′	86° 15′	68° 6′	58° 58′	87° 11′
	h m 8 5	h m 8 10	h m 8 19	h m 8 24	h m 8 32	h m 8 36	h m 8 47	h m 9 8
	s	s	s	s	s	s	s	s
(Dec. 30.6)	25.71 + .20	6.02 + .20	45.11 + .90	16.01 + .35	34.53 + .30	26.38 + .94	1.52 + .25	12.54 + .25
Jan. 9.5	25.89 .16	6.20 .16	45.29 .16	16.27 + .18	34.72 .17	26.60 .20	1.76 .22	12.77 .21
19.5	26.03 .11	6.34 .10	45.42 .10	16.36 − .01	34.88 .12	26.77 .14	1.96 .16	12.95 .16
29.5	26.10 + .05	6.40 + .05	45.49 .05	16.25 .19	34.96 .07	26.87 .08	2.08 .10	13.08 .11
Feb. 8.5	26.13 .00	6.43 .00	45.52 + .01	15.98 .36	35.01 + .03	26.93 + .03	2.15 + .05	13.16 + .06
18.4	26.11 − .05	6.41 − .04	45.51 − .04	15.53 − .53	35.01 − .02	26.94 − .01	2.18 − .01	13.20 .00
28.4	26.04 .10	6.35 .09	45.45 .09	14.92 .67	34.96 .07	26.90 .07	2.13 .07	13.17 − .04
Mar. 10.4	25.92 .13	6.23 .12	45.34 .12	14.19 .78	34.87 .10	26.81 .11	2.04 .11	13.12 .08
20.4	25.78 .15	6.10 .14	45.22 .14	13.36 .87	34.76 .13	26.68 .14	1.92 .14	13.02 .11
30.3	25.62 .16	5.95 .15	45.07 .16	12.45 .94	34.62 .15	26.54 .15	1.76 .16	12.91 .12
Apr. 9.3	25.46 − .17	5.80 − .16	44.91 − .17	11.49 − .98	34.47 − .16	26.38 − .16	1.60 − .17	12.78 − .14
19.3	25.28 .17	5.64 .17	44.74 .16	10.50 1.00	34.31 .15	26.22 .17	1.42 .18	12.63 .15
29.3	25.13 .15	5.47 .16	44.59 .15	9.49 1.00	34.16 .14	26.05 .16	1.24 .18	12.49 .14
May 9.2	24.99 − .13	5.34 − .13	44.45 − .13	8.51 − .98	34.02 − .13	25.90 − .14	1.07 − .17	12.35 − .13

APPARENT RIGHT ASCENSIONS AND APPROXIMATE NORTH POLAR DISTANCES, FOR TRANSIT AT WASHINGTON.

Mean Solar Date.	β Argus.	α Lyncis.	10 Leonis Minoris.	o Leonis.	ζ Chamæleontis.	19 Leonis Minoris.	π Leonis.	λ Ursæ Majoris.
	159° 14′	55° 7′	53° 5′	79° 34′	170° 24′	48° 23′	81° 23′	46° 30′
	h m 9 11	h m 9 13	h m 9 26	h m 9 34	h m 9 37	h m 9 50	h m 9 53	h m 10 9
	s	s	s	s	s	s	s	s
(Dec. 30.6)	56.68 + .40	50.67 + .28	58.33 + .29	50.03 + .26	25.90 + .86	26.00 + .33	57.48 + .26	57.26 + .39
Jan. 9.6	57.03 .30	50.93 .25	58.61 .26	50.28 .23	26.66 .66	26.32 .30	57.73 .24	57.62 .33
19.6	57.27 .18	51.16 .20	58.86 .22	50.49 .19	27.21 .43	26.60 .25	57.96 .20	57.92 .23
29.5	57.39 + .06	51.33 .14	59.05 .16	50.65 .14	27.51 + .19	26.82 .19	58.13 .16	58.17 .22
Feb. 8.5	57.39 − .06	51.43 .08	59.17 .09	50.76 .09	27.59 − .04	26.98 .12	58.27 .11	58.36 .15
18.5	57.27 − .17	51.48 + .02	59.23 + .04	50.82 + .04	27.42 − .28	27.06 + .06	58.34 + .06	58.46 + .09
28.4	57.05 .28	51.47 − .04	59.24 − .02	50.84 − .01	27.04 .48	27.10 .00	58.38 + .01	58.53 + .03
Mar. 10.4	56.72 .36	51.41 .09	59.19 .07	50.80 .06	26.46 .67	27.07 − .06	58.37 − .04	58.52 − .04
20.4	56.33 .43	51.29 .13	59.08 .13	50.73 .09	25.71 .83	26.99 .11	58.31 .07	58.45 .10
30.4	55.87 .49	51.15 .15	58.94 .15	50.63 .11	24.80 .98	26.85 .15	58.23 .10	58.33 .14
Apr. 9.3	55.35 − .53	50.99 − .18	58.78 − .17	50.51 − .13	23.75 −1.10	26.70 − .17	58.12 − .12	58.18 − .17
19.3	54.81 .55	50.80 .19	58.60 .19	50.37 .14	22.61 1.18	26.52 .19	57.99 .13	58.00 .19
29.3	54.25 .57	50.62 .18	58.41 .18	50.23 .13	21.40 1.23	26.32 .20	57.86 .13	57.81 .20
May 9.3	53.68 .56	50.43 .18	58.23 .17	50.10 .13	20.16 1.26	26.12 .20	57.73 .13	57.60 .20
19.2	53.12 − .55	50.27 − .16	58.06 − .16	49.97 − .12	18.89 −1.28	25.93 − .19	57.60 − .12	57.41 − .18

Mean Solar Date.	μ Hydræ.	β Leonis Minoris.	α Antliæ.	β Octantis, S. P.	41 Leonis Minoris.	δ² Chamæleontis.	46 Leonis Minoris.	Groombr. 1706.
	106° 14′	52° 41′	120° 28′	188° 0′	66° 12′	169° 55′	55° 9′	11° 36′
	h m 10 20	h m 10 21	h m 10 21	h m 10 33	h m 10 36	h m 10 44	h m 10 46	h m 10 50
	s	s	s	s	s	s	s	s
Jan. 19.6	22.52 + .22	2.71 + .27	44.85 + .22	42.98 − .72	59.09 + .24	45.03 + .80	41.78 + .28	30.05 + .92
29.6	22.72 .17	2.95 .21	45.05 .18	42.38 .48	59.32 .21	45.73 .60	42.04 .24	30.88 .75
Feb. 8.5	22.87 .12	3.13 .15	45.21 .13	42.03 − .23	59.51 .16	46.23 .39	42.25 .19	31.54 .55
18.5	22.96 .08	3.24 .09	45.30 .07	41.93 + .01	59.64 .11	46.51 + .18	42.41 .13	31.98 .34
28.5	23.01 + .03	3.32 + .04	45.35 + .02	42.05 .24	59.72 .05	46.60 − .02	42.50 .07	32.23 + .13
Mar. 10.5	23.02 − .02	3.32 − .01	45.34 − .02	42.42 + .48	59.75 + .01	46.47 − .22	42.54 + .01	32.23 − .10
20.4	22.99 .05	3.29 .06	45.31 .06	43.02 .70	59.74 − .04	46.16 .40	42.53 − .03	32.04 .29
30.4	22.92 .08	3.20 .11	45.22 .10	43.83 .92	59.68 .07	45.66 .58	42.48 .07	31.65 .48
Apr. 9.4	22.82 .11	3.07 .14	45.11 .12	44.85 1.10	59.60 .10	45 00 .72	42.39 .11	31.08 .64
19.4	22.71 .13	2.92 .16	44.98 .14	46.03 1.26	59.49 .12	44.22 .84	42.26 .14	30.38 .76
29.3	22.59 − .13	2.75 − .17	44.84 − .15	47.37 +1.40	59.36 − .14	43.32 − .95	42.12 − .15	29.56 − .86
May 9.3	22.46 .13	2.58 .18	44.69 .15	48.83 1.51	59.22 .14	42.32 1.03	41.96 .16	28.67 .92
19.3	22.33 .13	2.40 .17	44.54 .15	50.38 1.58	59.08 .14	41.27 1.08	41.81 .16	27.72 .95
29.3	22.20 .13	2.23 .16	44.38 .15	51.99 1.62	58.95 .13	40.17 1.12	41.64 .16	26.77 .94
June 8.2	22.08 − .11	2.08 − .14	44.24 − .14	53.61 +1.61	58.83 − .11	39.04 −1.13	41.49 − .15	25.85 − .90

APPARENT RIGHT ASCENSIONS AND APPROXIMATE NORTH POLAR DISTANCES, FOR TRANSIT AT WASHINGTON.

Mean Solar Date.	η Octantis.	p^3 Leonis.	ψ Urs. Maj.	ν Urs. Maj.	ξ Hydræ.	χ Urs. Maj.	π Virginis.	ϵ Corvi.
	173° 58′	87° 24′	44° 52′	56° 16′	121° 12′	41° 34′	82° 44′	111° 58′
	h m 11 0	h m 11 0	h m 11 3	h m 11 12	h m 11 27	h m 11 39	h m 11 54	h m 12 4
	s	s	s	s	s	s	s	s
Feb. 8.6	17.09 + .75	52.65 + .16	1.32 + .22	5.91 + .22	11.70 + .19	48.79 + .28	48.94 + .22	2.95 + .22
18.6	17.67 .41	52.79 .12	1.51 .16	6.10 .16	11.88 .16	49.04 .22	49.14 .18	3.16 .19
28.5	17.91 + .08	52.89 .08	1.64 .10	6.22 .10	12.02 .11	49.22 .15	49.30 .13	3.33 .14
Mar. 10.5	17.84 − .24	52.94 + .03	1.70 + .04	6.29 + .04	12.09 .05	49.33 .08	49.40 .08	3.44 .10
20.5	17.42 .55	52.95 − .01	1.71 − .02	6.30 − .01	12.13 + .01	49.38 + .02	49.46 .05	3.53 .07
30.4	16.74 − .84	52.92 − .04	1.65 − .09	6.27 − .05	12.13 − .02	49.37 − .04	49.50 + .02	3.57 + .03
Apr. 9.4	15.75 1.10	52.88 .06	1.54 .12	6.21 .09	12.09 .06	49.30 .10	49.50 − .01	3.58 .00
19.4	14.53 1.34	52.80 .08	1.41 .15	6.10 .12	12.02 .08	49.18 .14	49.47 .05	3.56 − .03
29.4	13.08 1.54	52.71 .10	1.24 .18	5.98 .13	11.94 .10	49.03 .17	49.40 .07	3.52 .05
May 9.3	11.46 1.69	52.60 .11	1.06 .19	5.84 .15	11.82 .12	48.85 .19	49.33 .08	3.45 .07
19.3	9.71 −1.81	52.48 − .11	0.86 − .20	5.69 − .15	11.69 − .13	48.66 − .20	49.25 − .10	3.37 − .09
29.3	7.85 1.88	52.38 .11	0.65 .20	5.54 .16	11.56 .14	48.45 .22	49.14 .10	3.28 .10
June 8.3	5.95 1.90	52.28 .10	0.47 .19	5.38 .15	11.41 .14	48.22 .22	49.04 .10	3.16 .11
18.2	4.06 −1.88	52.18 − .09	0.27 − .19	5.23 − .14	11.27 − .14	48.01 − .20	48.94 − .09	3.05 − .11

Mean Solar Date.	2 Can. Ven.	6 Urs. Min.	δ^3 Corvi.	β Can. Ven.	γ Virginis, (*mean.*)	31 Cor. Bor.	γ Cassiop., S. P.	43 Cephei, S. P.
	48° 41′	1° 39′	105° 51′	48° 0′	90° 48′	61° 49′	330° 5′	355° 37′
	h m 12 10	h m 12 14	h m 12 23	h m 12 28	h m 12 35	h m 12 45	h m 12 49	h m 12 52
	s	s	s	s	s	s	s	s
Feb. 8.6	12.26 + .27	48.73 +5.47	44.98 + .23	7.88 + .27	40.17 + .25	56.40 + .28	32.37 − .29	37.74 −2.28
18.6	12.51 .23	53.58 4.23	45.20 .20	8.14 .25	40.40 .21	56.66 .24	32.11 .23	35.64 1.90
28.6	12.72 .18	57.18 2.97	45.38 .16	8.37 .20	40.58 .17	56.87 .20	31.92 .17	33.94 1.48
Mar. 10.5	12.86 .11	59.52 1.63	45.52 .12	8.53 .14	40.73 .12	57.05 .16	31.77 .10	32.69 1.01
20.5	12.94 .06	60.43 + .21	45.62 .08	8.64 .09	40.82 .09	57.18 .10	31.72 − .02	31.92 − .48
30.5	12.98 + .01	59.95 −1.17	45.68 + .05	8.70 + .03	40.90 + .06	57.24 + .06	31.73 + .06	31.73 + .09
Apr. 9.5	12.97 − .04	58.09 2.51	45.71 + .02	8.70 − .02	40.94 + .03	57.29 + .03	31.85 .16	32.11 .62
19.4	12.91 .07	54.97 3.79	45.71 − .01	8.66 .06	40.95 .00	57.29 − .01	32.04 .23	32.97 1.12
29.4	12.82 .11	50.68 4.80	45.69 .04	8.59 .10	40.93 − .03	57.26 .05	32.30 .31	34.35 1.61
May 9.4	12.69 .14	45.43 5.68	45.64 .06	8.47 .13	40.90 .05	57.19 .07	32.66 .39	36.19 2.03
19.4	12.55 − .15	39.35 −6.38	45.57 − .08	8.34 − .15	40.83 − .07	57.11 − .10	33.07 + .44	38.39 +2.38
29.3	12.39 .17	32.70 6.86	45.49 .09	8.18 .17	40.76 .08	57.00 .12	33.53 .48	40.94 2.66
June 8.3	12.22 .18	25.66 7.16	45.40 .10	8.01 .18	40.68 .09	56.89 .12	34.02 .52	43.69 2.84
18.3	12.04 − .18	18.43 −7.23	45.30 − .10	7.82 − .19	40.58 − .10	56.77 − .11	34.57 + .56	46.61 +2.98

APPARENT RIGHT ASCENSIONS AND APPROXIMATE NORTH POLAR DISTANCES, FOR TRANSIT AT WASHINGTON.

Mean Solar Date.	δ Muscæ.	ε Virginis.	20 Can. Ven.	κ Octantis.	B.A.C. 4536.	m Virginis.	θ Apodis.	π Hydræ.
	160° 55′	78° 24′	48° 48′	175° 11′	52° 13′	98° 6′	166° 13′	116° 7′
	h m 12 54	h m 12 56	h m 13 12	h m 13 22	h m 13 29	h m 13 35	h m 13 53	h m 13 59
	s	s	s	s	s	s	s	s
Feb. 28.6	11.75 + .46	17.84 + .18	15.01 + .94	13.35 +1.94	31.46 + .26	24.59 + .21	53.43 + .89	38.62 + .23
Mar. 10.6	12.16 .35	18.01 .16	15.23 .90	15.10 1.56	31.70 .21	24.79 .19	54.20 .72	38.85 .22
20.6	12.45 .26	18.15 .11	15.40 .14	16.48 1.19	31.87 .16	24.96 .16	54.86 .59	39.07 .20
30.5	12.67 .16	18.22 .07	15.50 .09	17.48 .81	32.01 .11	25.10 .12	55.37 .46	39.24 .16
Apr. 9.5	12.76 + .06	18.28 .05	15.57 + .05	18.09 .43	32.09 .06	25.20 .09	55.77 .33	39.38 .12
19.5	12.78 − .03	18.31 + .01	15.59 .00	18.33 + .04	32.13 + .03	25.27 + .06	56.03 + .20	39.48 + .09
29.5	12.70 .12	18.29 − .02	15.58 − .04	18.17 − .36	32.13 − .01	25.31 + .03	56.16 + .07	39.56 .06
May 9.4	12.55 .20	18.27 .05	15.52 .09	17.62 .74	32.10 .05	25.33 .00	56.16 − .07	39.60 .04
19.4	12.30 .29	18.21 .07	15.41 .12	16.70 1.07	32.03 .09	25.31 − .03	56.03 .20	39.63 + .01
29.4	11.98 .35	18.14 .08	15.29 .13	15.48 1.38	31.92 .12	25.28 .04	55.77 .31	39.62 − .02
June 8.4	11.60 − .41	18.06 − .10	15.15 − .16	13.94 −1.68	31.80 − .13	25.23 − .06	55.41 − .43	39.59 − .05
18.3	11.16 .47	17.95 .11	14.98 .17	12.13 1.91	31.66 .15	25.17 .08	54.91 .53	39.52 .08
28.3	10.67 .48	17.84 .11	14.80 .19	10.12 2.09	31.50 .17	25.08 .10	54.35 .61	39.43 .10
July 8.3	10.20 − .46	17.73 − .10	14.61 − .19	7.95 −2.25	31.33 − .17	24.97 − .11	53.70 − .68	39.32 − .11

Mean Solar Date.	d Bootis.	κ Virginis.	δ Octantis.	4 Urs. Min.	λ Bootis.	λ Virginis.	a Apodis.	μ Hydri, S. P.
	64° 21′	99° 43′	173° 7′	11° 54′	43° 22′	102° 50′	168° 32′	190° 23′
	h m 14 5	h m 14 6	h m 14 8	h m 14 9	h m 14 11	h m 14 12	h m 14 33	h m 14 34
	s	s	s	s	s	s	s	s
Mar. 20.6	1.05 + .19	35.84 + .18	15.18 +1.22	24.81 + .58	54.35 + .22	43.24 + .19	17.99 + .86	7.05 − .84
30.6	1.22 .14	36.01 .16	16.29 .99	25.29 .38	54.55 .17	43.42 .16	18.79 .73	6.28 .69
Apr. 9.5	1.33 .10	36.15 .13	17.15 .72	25.57 .19	54.69 .11	43.56 .13	19.45 .58	5.67 .52
19.5	1.41 .07	36.24 .09	17.73 .46	25.67 + .01	54.77 .06	43.68 .10	19.95 .42	5.25 .32
29.5	1.47 + .04	36.32 .06	18.07 + .19	25.59 − .18	54.81 + .02	43.75 .07	20.29 .26	5.02 − .13
May 9.5	1.49 .00	36.36 + .03	18.10 − .10	25.31 − .35	54.81 − .03	43.81 + .04	20.47 + .11	4.99 + .07
19.4	1.48 − .03	36.38 .00	17.87 .35	24.89 .51	54.75 .08	43.83 + .01	20.51 − .05	5.16 .26
29.4	1.44 .06	36.38 − .02	17.40 .61	24.30 .65	54.66 .11	43.83 − .02	20.37 .22	5.52 .45
June 8.4	1.37 .08	36.35 .04	16.65 .87	23.59 .77	54.53 .14	43.80 .04	20.07 .38	6.06 .63
18.4	1.29 .10	36.30 .06	15.67 1.08	22.77 .86	54.38 .17	43.76 .06	19.62 .51	6.78 .79
28.3	1.17 − .13	36.23 − .08	14.51 −1.25	21.87 − .93	54.19 − .20	43.69 − .09	19.05 − .64	7.64 + .92
July 8.3	1.04 .14	36.14 .10	13.18 1.41	20.91 .98	53.99 .22	43.59 .11	18.34 .75	8.62 1.04
18.3	0.90 .14	36.02 .12	11.69 1.55	19.91 1.01	53.76 .23	43.48 .12	17.55 .84	9.72 1.13
28.2	0.75 − .14	35.90 − .13	10.09 −1.65	18.90 −1.01	53.53 − .23	43.36 − .12	16.67 − .92	10.87 +1.16

APPARENT RIGHT ASCENSIONS AND APPROXIMATE NORTH POLAR DISTANCES, FOR TRANSIT AT WASHINGTON.

Mean Solar Date.	33 Bootis.		47 Cephei, S. P.		γ Scorpii.		δ Bootis.		ρ Octantis.		β Cor. Bor.		γ Camelop., S. P.		δ¹ Apodis.	
	45° 5′		348° 57′		114° 49′		56° 15′		174° 4′		60° 29′		340° 58′		168° 24′	
	h m		h m		h m		h m		h m		h m		h m		h m	
	14 34		14 50		14 57		15 10		15 16		15 22		15 37		16 2	
	s		s		s		s		s		s		s		s	
Mar. 30.6	27.34	+ .19	18.57	− .46	9.69	+ .21	44.94	+ .22	21.88	+1.78	57.92	+ .21	49.94	− .40	46.12	+1.10
Apr. 9.6	27.51	.14	18.19	.29	9.89	.19	45.14	.18	23.52	1.50	58.12	.19	49.61	.27	47.16	.98
19.6	27.62	.09	18.00	− .08	10.06	.16	45.29	.14	24.88	1.21	58.29	.15	49.41	.14	48.07	.84
29.5	27.69	.06	18.04	+ .14	10.21	.13	45.41	.10	25.94	.90	58.42	.11	49.34	− .01	48.84	.70
May 9.5	27.73	+ .01	18.29	.37	10.30	.09	45.49	.06	26.67	.58	58.51	.08	49.40	+ .11	49.46	.55
19.5	27.71	− .05	18.78	+ .58	10.38	+ .07	45.53	+ .03	27.09	+ .94	58.57	+ .05	49.56	+ .24	49.93	+ .38
29.5	27.64	.09	19.45	.75	10.43	+ .03	45.54	− .01	27.16	− .09	58.60	+ .01	49.88	.37	50.21	.20
June 8.4	27.53	.12	20.28	.91	10.44	− .01	45.51	.05	26.91	.49	58.59	− .03	50.30	.49	50.33	+ .03
18.4	27.41	.15	21.26	1.06	10.42	.04	45.45	.09	26.32	.74	58.54	.06	50.85	.58	50.27	− .15
28.4	27.24	.18	22.40	1.18	10.38	.06	45.34	.12	25.42	1.05	58.47	.10	51.45	.66	50.03	.32
July 8.4	27.06	− .20	23.61	+1.25	10.30	− .09	45.22	− .14	24.23	−1.31	58.35	− .13	52.16	+ .73	49.63	− .47
18.3	26.84	.22	24.89	1.30	10.19	.12	45.06	.16	22.81	1.54	58.22	.14	52.91	.77	49.10	.62
28.3	26.62	.23	26.20	1.32	10.07	.14	44.90	.18	21.15	1.73	58.07	.16	53.69	.80	48.40	.75
Aug. 7.3	26.38	.24	27.52	1.31	9.92	.15	44.71	.20	19.36	1.83	57.89	.18	54.51	.81	47.60	.85
17.2	26.13	.24	28.82	1.28	9.77	.16	44.50	.20	17.50	1.87	57.70	.19	55.32	.81	46.71	.91
27.2	25.90	− .23	30.08	+1.23	9.60	− .17	44.30	− .20	15.64	−1.85	57.51	− .19	56.13	+ .80	45.79	− .93

Mean Solar Date.	φ Herculis.		σ Cor. Bor. (*mean.*)		γ Apodis.		η Urs. Min.		η Ophiuchi.		π Herculis.		θ Ophiuchi.		δ Aræ.	
	44° 45′		55° 50′		168° 38′		13° 58′		105° 35′		53° 3′		114° 53′		150° 35′	
	h m		h m		h m		h m		h m		h m		h m		h m	
	16 5		16 10		16 15		16 20		17 3		17 10		17 14		17 20	
	s		s		s		s		s		s		s		s	
Apr. 9.6	3.60	+ .25	15.79	+ .23	24.83	+1.03	62.51	+ .63	34.12	+ .27	56.31	+ .29	45.10	+ .30	26.32	+ .53
19.6	3.83	.21	16.01	.21	25.80	.91	63.07	.49	34.38	.25	56.59	.27	45.39	.28	26.83	.49
29.6	4.01	.17	16.19	.16	26.65	.77	63.49	.35	34.62	.23	56.84	.23	45.65	.25	27.29	.45
May 9.6	4.16	.12	16.33	.13	27.33	.60	63.76	.20	34.83	.20	57.04	.19	45.89	.23	27.72	.40
19.5	4.25	.07	16.44	.09	27.86	.45	63.88	+ .05	35.01	.17	57.22	.16	46.11	.20	28.09	.34
29.5	4.30	+ .03	16.51	+ .05	28.22	+ .27	63.86	− .11	35.17	+ .14	57.36	+ .11	46.30	+ .17	28.40	+ .28
June 8.5	4.31	− .02	16.53	+ .01	28.40	+ .09	63.67	.26	35.29	.10	57.44	.07	46.44	.13	28.64	.21
18.5	4.26	.08	16.53	− .03	28.40	− .10	63.33	.41	35.37	.07	57.50	+ .03	46.55	.09	28.81	.13
28.4	4.16	.12	16.48	.07	28.21	.28	62.85	.54	35.42	+ .03	57.50	− .02	46.62	.06	28.90	+ .06
July 8.4	4.02	.16	16.39	.11	27.85	.44	62.26	.66	35.42	− .01	57.46	.06	46.66	+ .02	28.92	− .01
18.4	3.85	− .19	16.26	− .14	27.33	− .60	61.54	− .76	35.40	− .05	57.38	− .11	46.65	− .03	28.87	− .09
28.3	3.64	.22	16.11	.17	26.65	.73	60.75	.83	35.33	.09	57.25	.15	46.60	.08	28.73	.17
Aug. 7.3	3.41	.24	15.92	.20	25.87	.84	59.88	.90	35.23	.12	57.08	.19	46.49	.12	28.52	.24
17.3	3.16	.27	15.72	.22	24.96	.93	58.95	.94	35.10	.15	56.88	.21	46.36	.14	28.26	.30
27.3	2.87	.28	15.49	.22	24.02	.96	58.00	.96	34.94	.17	56.66	.23	46.21	.16	27.93	.34
Sept. 6.2	2.60	− .28	15.27	− .23	23.04	− .97	57.03	− .97	34.77	− .18	56.41	− .24	46.04	− .18	27.57	− .36
16.2	2.32	.27	15.05	.23	22.09	.92	56.07	.93	34.59	.18	56.17	.24	45.84	.19	27.21	.37
26.2	2.06	.24	14.82	.23	21.20	.85	55.19	.86	34.41	.17	55.92	.24	45.66	.18	26.84	.36
Oct. 6.2	1.84	− .20	14.58	− .23	20.40	− .75	54.36	− .78	34.25	− .15	55.69	− .23	45.49	− .16	26.50	− .33

APPARENT RIGHT ASCENSIONS AND APPROXIMATE NORTH POLAR DISTANCES, FOR TRANSIT AT WASHINGTON.

Mean Solar Date.	Groombr. 944, S. P.	ι Herculis.	θ Herculis.	ο Herculis.	λ Sagittarii.	χ Draconis.	ζ Pavonis.	γ Lyræ.
	355° 8′	43° 56′	52° 44′	61° 15′	115° 29′	17° 19′	161° 32′	57° 28′
	h m 17 23	h m 17 36	h m 17 52	h m 18 2	h m 18 20	h m 18 23	h m 18 29	h m 18 54
	s	s	s	s	s	s	s	s
May 19.6	59.29 − .46	9.39 + .18	13.26 + .20	57.03 + .20	41.42 + .25	15.01 + .43	15.70 + .64	32.32 + .26
29.6	59.06 .00	9.55 .14	13.44 .16	57.22 .18	41.66 .23	15.38 .30	16.30 .56	32.56 .23
June 8.5	59.29 + .46	9.66 .09	13.58 .12	57.38 .14	41.88 .20	15.62 .18	16.82 .46	32.77 .19
18.5	60.00 .92	9.73 + .04	13.67 .07	57.49 .09	42.06 .16	15.74 + .06	17.22 .35	32.94 .14
28.5	61.13 1.34	9.74 − .01	13.71 + .03	57.55 + .05	42.19 .11	15.75 − .06	17.52 .24	33.04 .09
July 8.5	62.68 +1.74	9.70 − .07	13.72 − .02	57.58 .00	42.28 + .07	15.61 − .20	17.69 + .11	33.12 + .06
18.4	64.59 2.06	9.60 .12	13.67 .07	57.57 − .04	42.33 + .03	15.35 .31	17.73 − .02	33.16 + .01
28.4	66.79 2.36	9.46 .17	13.58 .12	57.51 .09	42.33 − .02	15.00 .42	17.64 .14	33.14 − .04
Aug. 7.4	69.31 2.62	9.27 .21	13.44 .16	57.40 .13	42.28 .07	14.51 .53	17.45 .26	33.08 .09
17.4	72.03 2.80	9.04 .25	13.26 .19	57.26 .16	42.20 .11	13.95 .62	17.13 .37	32.96 .14
27.3	74.91 +2.95	8.78 − .27	13.06 − .22	57.08 − .18	42.06 − .15	13.30 − .69	16.71 − .47	32.81 − .17
Sept. 6.3	77.92 3.04	8.50 .30	12.83 .24	56.89 .20	41.90 .17	12.58 .75	16.20 .54	32.62 .20
16.3	80.98 3.06	8.19 .31	12.58 .25	56.68 .22	41.72 .18	11.81 .78	15.63 .58	32.41 .22
26.2	84.04 3.03	7.89 .30	12.32 .25	56.45 .21	41.53 .19	11.03 .79	15.04 .60	32.19 .23
Oct. 6.2	87.03 2.94	7.60 .28	12.07 .24	56.23 .21	41.34 .19	10.23 .80	14.43 .61	31.96 .23
16.2	89.92 +2.83	7.33 − .26	11.83 − .23	56.02 − .20	41.16 − .18	9.44 − .78	13.83 − .59	31.73 − .22

Mean Solar Date.	ι Lyræ.	25 Camelop. S. P.	θ Lyræ.	β Cygni.	β Sagittæ.	δ Cygni.	Groombr. 1374, S. P.	ε Pavonis.
	54° 5′	352° 38′	52° 5′	62° 17′	72° 48′	45° 9′	344° 14′	163° 13′
	h m 19 3	h m 19 5	h m 19 12	h m 19 25	h m 19 35	h m 19 41	h m 19 45	h m 19 46
	s	s	s	s	s	s	s	s
May 29.6	6.31 + .24	58.58 − .68	17.15 + .24	58.30 + .24	45.28 + .25	18.14 + .29	57.06 − .36	56.90 + .76
June 8.6	6.53 .20	58.05 .38	17.38 .21	58.53 .22	45.52 .23	18.41 .25	56.75 .26	57.62 .69
18.6	6.71 .16	57.82 − .09	17.57 .17	58.74 .19	45.73 .20	18.64 .21	56.55 − .14	58.26 .58
28.6	6.84 .11	57.87 + .19	17.71 .12	58.90 .13	45.91 .16	18.82 .15	56.48 .00	58.77 .47
July 8.5	6.92 .06	58.20 .48	17.80 .07	59.00 .09	46.04 .11	18.94 .10	56.56 + .13	59.19 .35
18.5	6.95 + .01	58.82 + .76	17.84 + .02	59.08 + .05	46.12 + .07	19.02 + .04	56.74 + .25	59.47 + .21
28.5	6.94 − .04	59.71 1.00	17.84 − .03	59.10 .00	46.17 + .03	19.02 − .02	57.05 .38	59.60 + .07
Aug. 7.4	6.88 .09	60.81 1.22	17.78 .09	59.08 − .05	46.17 − .02	18.98 .08	57.50 .50	59.60 − .08
17.4	6.76 .14	62.14 1.43	17.66 .14	59.01 .10	46.12 .07	18.87 .13	58.04 .59	59.44 .22
27.4	6.61 .17	63.67 1.63	17.51 .17	58.89 .14	46.03 .11	18.73 .17	58.67 .70	59.16 .34
Sept. 6.4	6.42 − .20	65.39 +1.77	17.32 − .21	58.73 − .17	45.91 − .14	18.53 − .21	59.43 + .78	58.76 − .46
16.3	6.20 .23	67.21 1.88	17.10 .23	58.56 .19	45.76 .16	18.31 .24	60.23 .85	58.24 .56
26.3	5.96 .24	69.15 1.97	16.86 .25	58.36 .20	45.59 .18	18.06 .26	61.12 .91	57.65 .62
Oct. 6.3	5.72 .24	71.15 2.03	16.61 .25	58.15 .21	45.40 .19	17.78 .28	62.05 .95	57.01 .66
16.3	5.48 .24	73.20 2.02	16.36 .24	57.94 .21	45.21 .18	17.50 .28	63.02 .97	56.33 .68
26.2	5.24 − .23	75.19 +1.99	16.12 − .23	57.74 − .20	45.03 − .17	17.22 − .28	63.98 + .97	55.66 − .66
Nov. 5.2	5.04 − .20	77.17 +1.96	15.90 − .21	57.55 − .19	44.87 − .15	16.94 − .27	64.96 + .96	55.01 − .64

APPARENT RIGHT ASCENSIONS AND APPROXIMATE NORTH POLAR DISTANCES, FOR TRANSIT AT WASHINGTON.

Mean Solar Date.	γ Sagittæ.	c Sagittarii.	θ Aquilæ.	o¹ Cygni.	α Delphini.	β Pavonis.	ψ Capricor.	ε Cygni.
	70° 50′	118° 2′	91° 10′	43° 37′	74° 30′	156° 38′	115° 42′	56° 28′
	h m 19 53	h m 19 55	h m 20 5	h m 20 9	h m 20 34	h m 20 34	h m 20 39	h m 20 41
	s	s	s	s	s	s	s	s
June 18.6	31.32 + .21	24.54 + .26	13.46 + .21	56.31 + .23	9.98 + .28	19.91 + .52	6.74 + .28	27.00 + .26
28.6	31.51 .17	24.78 .22	13.66 .19	56.52 .19	10.20 .21	20.39 .45	7.00 .24	27.24 .22
July 8.5	31.66 .13	24.97 .17	13.84 .16	56.69 .14	10.39 .17	20.80 .37	7.22 .21	27.44 .18
18.5	31.76 .08	25.11 .12	13.97 .11	56.80 .08	10.53 .12	21.12 .27	7.41 .17	27.60 .13
28.5	31.82 + .04	25.20 .07	14.05 .06	56.84 + .02	10.62 .08	21.34 .17	7.55 .11	27.69 .07
Aug. 7.5	31.84 − .01	25.24 + .01	14.08 + .01	56.84 − .04	10.68 + .04	21.45 + .07	7.62 + .05	27.74 + .03
17.4	31.80 .06	25.23 − .04	14.08 − .03	56.77 .10	10.69 − .01	21.46 − .04	7.65 + .01	27.74 − .02
27.4	31.73 .10	25.17 .08	14.03 .07	56.65 .15	10.66 .05	21.36 .14	7.64 − .04	27.70 .07
Sept. 6.4	31.61 .13	25.07 .12	13.94 .10	56.48 .19	10.59 .09	21.18 .24	7.58 .08	27.60 .12
16.4	31.48 .16	24.93 .15	13.83 .13	56.27 .23	10.48 .13	20.89 .33	7.48 .12	27.47 .15
26.3	31.30 − .18	24.77 − .17	13.69 − .15	56.02 − .26	10.34 − .15	20.53 − .39	7.35 − .15	27.30 − .18
Oct. 6.3	31.12 .18	24.60 .19	13.53 .16	55.75 .27	10.19 .17	20.11 .44	7.19 .17	27.12 .20
16.3	30.94 .19	24.40 .19	13.37 .16	55.48 .28	10.01 .17	19.66 .46	7.01 .18	26.91 .21
26.2	30.75 .18	24.22 .18	13.21 .16	55.20 .28	9.84 .17	19.19 .47	6.84 .18	26.71 .21
Nov. 5.2	30.58 .17	24.05 .16	13.04 .15	54.92 .27	9.68 .16	18.72 .46	6.66 .17	26.50 .20
15.2	30.42 − .13	23.90 − .14	12.91 − .11	54.66 − .25	9.53 − .15	18.27 − .43	6.51 − .15	26.30 − .19
25.2	30.32 − .08	23.77 − .11	12.82 − .07	54.42 − .23	9.39 − .13	17.87 − .38	6.36 − .14	26.12 − .17

Mean Solar Date.	τ Cygni.	ζ Capricor.	74 Cygni.	λ¹ Octantis.	ζ Chamæleontis, S.P.	π² Cygni.	16 Pegasi.	π Pegasi.
	52° 27′	112° 55′	50° 7′	173° 16′	189° 35′	41° 14′	64° 38′	57° 24′
	h m 21 10	h m 21 19	h m 21 32	h m 21 32	h m 21 37	h m 21 42	h m 21 47	h m 22 4
	s	s	s	s	s	s	s	s
July 8.6	6.11 + .22	56.37 + .24	14.40 + .23	46.25 +1.37	13.41 − .78	27.51 + .27	42.43 + .24	45.73 + .26
18.6	6.30 .16	56.59 .20	14.61 .19	47.48 1.09	12.71 .62	27.76 .21	42.65 .20	45.97 .22
28.5	6.43 .11	56.77 .15	14.77 .14	48.43 .80	12.17 .43	27.94 .15	42.82 .15	46.16 .17
Aug. 7.5	6.51 .06	56.89 .10	14.89 .09	49.07 .46	11.86 − .21	28.06 .10	42.95 .11	46.31 .12
17.5	6.54 + .01	56.96 + .05	14.94 + .03	49.35 + .12	11.75 .00	28.13 + .04	43.03 .06	46.40 .08
27.5	6.53 − .04	56.98 .00	14.95 − .02	49.31 − .20	11.86 + .25	28.13 − .02	43.07 + .01	46.46 + .04
Sept. 6.4	6.46 .10	56.97 − .04	14.90 .07	48.94 .55	12.24 .48	28.10 .07	43.06 − .03	46.47 − .01
16.4	6.34 .14	56.92 .08	14.81 .11	48.22 .87	12.82 .68	27.99 .14	43.01 .07	46.44 .06
26.4	6.19 .17	56.80 .12	14.68 .15	47.21 1.15	13.60 .89	27.83 .18	42.93 .11	46.36 .10
Oct. 6.3	6.01 .19	56.68 .14	14.51 .18	45.92 1.40	14.60 1.08	27.63 .21	42.80 .13	46.24 .13
16.3	5.81 − .20	56.53 − .16	14.32 − .20	44.42 −1.57	15.76 +1.23	27.42 − .23	42.67 − .15	46.10 − .15
26.3	5.60 .21	56.37 .16	14.11 .21	42.78 1.70	17.05 1.33	27.18 .25	42.51 .16	45.94 .17
Nov. 5.3	5.39 .21	56.21 .16	13.90 .21	41.03 1.76	18.42 1.39	26.92 .26	42.35 .16	45.77 .18
15.2	5.18 .20	56.05 .15	13.68 .21	39.27 1.75	19.83 1.40	26.66 .26	42.18 .16	45.59 .18
25.2	4.98 .19	55.90 .14	13.48 .20	37.55 1.67	21.22 1.37	26.40 .26	42.03 .15	45.41 .17
Dec. 5.2	4.80 − .17	55.78 − .11	13.28 − .19	35.95 −1.53	22.54 +1.29	26.15 − .25	41.89 − .13	45.25 − .15

APPARENT RIGHT ASCENSIONS AND APPROXIMATE NORTH POLAR DISTANCES, FOR TRANSIT AT WASHINGTON.

Mean Solar Date.	υ Octantis.	γ Aquarii.	σ Aquarii.	α Lacertæ.	10 Lacertæ.	β Octantis.	λ Pegasi.	Groombr. 1706, S. P.
	176° 34′	91° 59′	101° 17′	40° 19′	51° 34′	172° 0′	67° 3′	348° 24′
	h m 22 8	h m 22 15	h m 22 24	h m 22 26	h m 22 33	h m 22 33	h m 22 40	h m 22 50
	s	s	s	s	s	s	s	s
July 8.6	49.49 +2.90	34.15 + .25	24.48 + .27	27.06 + .31	58.87 + .29	58.28 +1.34	51.41 + .27	23.42 − .70
18.6	52.14 2.40	34.38 .22	24.73 .23	27.35 .28	59.14 .25	59.55 1.20	51.67 .25	22.79 .56
28.6	54.30 1.88	34.58 .18	24.95 .20	27.61 .23	59.37 .21	60.67 1.00	51.90 .21	22.31 .41
Aug. 7.5	55.91 1.39	34.73 .14	25.12 .15	27.81 .16	59.56 .17	61.55 .76	52.08 .16	21.96 .30
17.5	56.94 .71	34.85 .10	25.25 .10	27.93 .10	59.70 .11	62.18 .49	52.22 .12	21.72 − .16
27.5	57.33 + .06	34.93 + .05	25.32 + .06	28.01 + .05	59.78 + .06	62.53 + .22	52.31 + .08	21.65 .00
Sept. 6.5	57.05 − .62	34.95 + .01	25.37 + .03	28.03 − .01	59.82 + .01	62.61 − .07	52.37 + .04	21.72 + .16
16.4	56.09 1.25	34.95 − .03	25.38 − .02	27.99 .07	59.81 − .03	62.38 .37	52.38 − .01	21.97 .32
26.4	54.55 1.84	34.91 .06	25.34 .05	27.90 .11	59.76 .08	61.87 .63	52.35 .05	22.36 .47
Oct. 6.4	52.42 2.40	34.84 .09	25.27 .08	27.77 .16	59.66 .12	61.12 .88	52.29 .08	22.91 .62
16.4	49.75 −2.85	34.74 − .11	25.18 − .11	27.59 − .19	59.53 − .14	60.11 −1.11	52.20 − .11	23.59 + .77
26.3	46.72 3.30	34.62 .13	25.05 .12	27.39 .22	59.39 .16	58.91 1.28	52.08 .13	24.44 .90
Nov. 5.3	43.36 3.44	34.49 .13	24.93 .13	27.16 .24	59.22 .18	57.56 1.40	51.95 .13	25.38 1.00
15.3	39.85 3.53	34.36 .13	24.79 .13	26.92 .25	59.03 .19	56.12 1.47	51.82 .14	26.44 1.11
25.2	36.31 3.51	34.23 .13	24.66 .13	26.67 .25	58.85 .19	54.63 1.48	51.67 .14	27.60 1.18
Dec. 5.2	32.85 −3.33	34.11 − .11	24.53 − .12	26.42 − .24	58.66 − .19	53.16 −1.45	51.53 − .14	28.79 +1.21
15.2	29.65 −3.05	34.01 − .09	24.43 − .10	26.19 − .22	58.48 − .18	51.75 −1.38	51.39 − .13	30.01 +1.23

Mean Solar Date.	o Androm.	φ Aquarii.	τ Pegasi.	λ Androm.	i¹ Aquarii.	δ Sculptoris.	γ¹ Octantis.	33 Piscium.
	48° 18′	96° 41′	66° 54′	44° 11′	108° 56′	118° 47′	172° 40′	96° 22′
	h m 22 56	h m 23 8	h m 23 14	h m 23 31	h m 23 38	h m 23 42	h m 23 45	h m 23 59
	s	s	s	s	s	s	s	s
July 28.6	30.89 + .24	13.43 + .23	48.73 + .22	48.70 + .29	5.48 + .26	47.34 + .27	12.54 +1.39	18.26 + .24
Aug. 7.6	31.11 .20	13.64 .19	48.94 .20	48.97 .25	5.72 .22	47.59 .23	13.83 1.19	18.49 .23
17.6	31.29 .15	13.81 .15	49.12 .16	49.20 .20	5.92 .18	47.80 .20	14.92 .97	18.71 .20
27.5	31.40 .10	13.93 .10	49.25 .11	49.37 .14	6.08 .14	47.98 .16	15.76 .70	18.87 .15
Sept. 6.5	31.48 + .05	14.01 .06	49.33 .07	49.48 .10	6.19 .10	48.11 .11	16.31 .40	19.01 .11
16.5	31.49 − .01	14.05 + .03	49.38 + .04	49.56 + .05	6.27 + .05	48.19 + .06	16.55 + .09	19.10 + .08
26.4	31.47 .05	14.06 − .01	49.40 .00	49.58 .00	6.30 + .02	48.22 + .02	16.49 − .22	19.17 + .04
Oct. 6.4	31.41 .09	14.04 .04	49.37 − .04	49.56 − .04	6.30 − .02	48.23 − .02	16.16 .53	19.18 .00
16.4	31.29 .13	13.98 .07	49.32 .07	49.50 .09	6.26 .05	48.18 .06	15.43 .82	19.17 − .03
26.4	31.16 .15	13.90 .09	49.23 .10	49.39 .13	6.20 .08	48.11 .09	14.47 1.08	19.14 .05
Nov. 5.3	31.00 − .17	13.80 − .12	49.12 − .12	49.25 − .15	6.11 − .11	48.00 − .12	13.27 −1.31	19.07 − .07
15.3	30.82 .19	13.67 .12	49.00 .12	49.09 .17	5.99 .12	47.88 .13	11.86 1.48	18.99 .09
25.3	30.63 .19	13.56 .12	48.88 .13	48.91 .19	5.87 .13	47.74 .15	10.32 1.58	18.89 .11
Dec. 5.3	30.44 .19	13.43 .12	48.74 .14	48.71 .20	5.74 .13	47.59 .15	8.69 1.64	18.78 .11
15.2	30.25 .19	13.33 .11	48.60 .13	48.51 .20	5.61 .13	47.45 .15	7.04 1.65	18.67 .11
25.2	30.07 − .19	13.22 − .10	48.47 − .13	48.30 − .21	5.49 − .12	47.30 − .14	5.40 −1.60	18.55 − .11
35.2	29.88 − .18	13.14 − .07	48.35 − .11	48.09 − .21	5.38 − .10	47.17 − .12	3.86 −1.49	18.45 − .10

APPARENT RIGHT ASCENSIONS AND APPROXIMATE NORTH POLAR DISTANCES, FOR TRANSIT AT WASHINGTON.

Mean Solar Date.	β Cassiop.	22 Androm.	σ Androm.	ι Ceti.	6 Urs. Min., S. P.	44 Piscium.	π Androm.	ο Cassiop.
	31° 30′	44° 35′	53° 52′	99° 29′	358° 21′	88° 43′	56° 56′	42° 22′
	h m 0 2	h m 0 4	h m 0 12	h m 0 13	h m 0 13	h m 0 19	h m 0 30	h m 0 38
	s	s	s	s	s	s	s	s
(Dec. 30.3)	54.30 − .33	12.51 − .20	10.99 − .16	25.64 − .11	74.30 +7.45	22.16 − .13	36.04 − .18	10.62 − .23
Jan. 9.2	53.98 .31	12.31 .20	10.83 .16	25.53 .11	81.70 7.30	22.04 .11	35.86 .17	10.39 .23
19.2	53.69 .28	12.12 .19	10.67 .17	25.43 .10	88.87 6.94	21.95 .10	35.71 .15	10.16 .22
29.2	53.42 − .26	11.94 − .17	10.52 − .16	25.33 − .09	95.53 +6.36	21.85 − .09	35.56 − .13	9.95 − .20
. .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Aug. 26.6	58.90 + .24	16.35 +.20	14.51 + .15	28.76 + .15	31.33 −3.36	25.24 + .15	39.31 + .21	14.23 + .24
Sept. 5.6	59.11 .18	16.52 .15	14.67 .14	28.90 .13	28.44 2.40	25.38 .14	39.50 .16	14.45 .20
15.5	59.25 .11	16.64 .10	14.80 .10	29.02 .10	26.54 1.38	25.51 .10	39.64 .12	14.63 .16
25.5	59.33 + .05	16.72 + .05	14.87 .06	29.09 .06	25.68 − .31	25.58 .06	39.74 .08	14.76 .11
Oct. 5.5	59.36 .00	16.74 .00	14.92 + .02	29.13 + .02	25.93 + .81	25.63 + .03	39.80 .04	14.84 .06
15.4	59.32 − .06	16.72 − .04	14.92 − .02	29.13 − .01	27.30 +1.90	25.64 .00	39.83 + .01	14.88 + .02
25.4	59.23 .12	16.67 .07	14.89 .05	29.10 .04	29.72 2.99	25.63 − .02	39.82 − .02	14.87 − .03
Nov. 4.4	59.08 .17	16.58 .11	14.83 .08	29.06 .06	33.28 4.06	25.59 .06	39.78 .06	14.82 .08
14.4	58.89 .22	16.45 .14	14.74 .11	28.98 .09	37.83 5.00	25.52 .08	39.71 .08	14.72 .11
24.3	58.65 .24	16.29 .16	14.61 .12	28.88 .10	43.27 5.86	25.44 .09	39.61 .10	14.60 .14
Dec. 4.3	58.40 − .28	16.12 − .18	14.47 − .14	28.77 − .11	49.53 +6.59	25.34 − .10	39.50 − .12	14.44 − .17
14.3	58.09 .31	15.93 .19	14.33 .16	28.67 .11	56.39 7.09	25.23 .11	39.37 .14	14.26 .19
24.3	57.78 .31	15.73 .20	14.16 .17	28.54 .12	63.67 7.38	25.12 .12	39.22 .16	14.06 .20
34.2	57.47 − .31	15.52 − .20	13.99 − .16	28.42 − .11	71.11 +7.44	25.00 − .12	39.06 − .16	13.85 − .21

Mean Solar Date.	δ Piscium.	γ Cassiop.	μ Androm.	43 Cephei.	f Piscium.	κ Tucanæ.	κ Octantis, S. P.	υ Androm.
	83° 3′	29° 55′	52° 8′	4° 23′	87° 0′	159° 30′	184° 49′	49° 11′
	h m 0 42	h m 0 49	h m 0 50	h m 0 52	h m 1 11	h m 1 11	h m 1 22	h m 1 29
	s	s	s	s	s	s	s	s
(Dec. 30.3)	34.72 − .11	37.48 − .33	13.79 − .17	57.95 −2.74	44.00 − .12	46.54 − .58	8.03 +2.88	54.30 − .16
Jan. 9.2	34.61 .12	37.15 .33	13.61 .17	55.22 2.72	43.88 .12	45.97 .57	10.96 2.93	54.13 .18
19.2	34.48 .12	36.82 .32	13.45 .17	52.51 2.69	43.75 .12	45.41 .55	13.89 2.87	53.94 .20
29.2	34.37 − .11	36.50 − .31	13.27 − .17	49.85 −2.64	43.63 − .12	44.88 − .52	16.69 +2.71	53.72 − .23
. .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Sept. 5.6	37.80 + .16	41.91 + .26	17.23 + .20	76.21 +1.51	46.79 + .21	49.84 + .38	5.91 −1.48	57.45 + .26
15.5	37.94 .12	42.14 .21	17.40 .15	77.60 1.19	46.97 .15	50.17 .29	4.60 1.09	57.69 .21
25.5	38.04 .08	42.33 .15	17.53 .11	78.58 .78	47.09 .11	50.41 .20	3.74 .63	57.86 .16
Oct. 5.5	38.11 .06	42.45 .09	17.62 .07	79.15 + .36	47.19 .08	50.56 .10	3.34 − .16	58.01 .13
15.5	38.15 + .02	42.51 + .03	17.67 + .04	79.29 − .08	47.26 .05	50.62 + .02	3.42 + .33	58.12 .09
25.4	38.16 − .01	42.51 − .04	17.69 .00	78.99 − .49	47.29 + .02	50.60 − .07	4.01 + .83	58.19 + .06
Nov. 4.4	38.13 .03	42.44 .10	17.67 − .04	78.31 .96	47.29 − .01	50.47 .17	5.07 1.31	58.23 + .01
14.4	38.10 .05	42.32 .15	17.61 .07	77.06 1.40	47.26 .04	50.25 .27	6.64 1.78	58.21 − .03
24.3	38.03 .08	42.14 .20	17.53 .09	75.50 1.74	47.21 .06	49.93 .36	8.61 2.16	58.17 .06
Dec. 4.3	37.95 .09	41.92 .24	17.42 .12	73.57 2.10	47.14 .07	49.53 .43	10.96 2.49	58.08 .09
14.3	37.85 − .10	41.66 − .28	17.28 − .14	71.30 −2.39	47.06 − .09	49.07 − .50	13.58 +2.71	57.98 − .12
24.3	37.74 .11	41.36 .31	17.13 .15	68.79 2.60	46.96 .10	48.53 .56	16.37 2.84	57.83 .15
34.2	37.62 − .12	41.04 − .33	16.97 − .16	66.11 −2.74	46.85 − .11	47.96 − .58	19.26 +2.91	57.67 − .17

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Mean Solar Date.	π Piscium.	ν Piscium.	ζ Ceti.	γ Androm.	β Trianguli.	4 Urs. Min., S. P.	γ Trianguli.	67 Ceti.
	78° 28′	85° 7′	100° 55′	48° 14′	55° 34′	348° 6′	56° 42′	96° 58′
	h m	h m	h m	h m	h m	h m	h m	h m
	1 30	1 35	1 45	1 56	2 2	2 9	2 10	2 11
	s	s	s	s	s	s	s	s
(Dec. 30.3)	52.07 − .12	18.87 − .12	39.49 − .13	41.63 − .15	33.44 − .13	15.83 +1.01	20.09 − .12	7.37 − .10
Jan. 9.3	51.94 .13	18.75 .12	39.36 .13	41.47 .18	33.30 .15	16.87 1.06	19.96 .15	7.26 .12
19.2	51.82 .14	18.62 .13	39.23 .14	41.28 .20	33.14 .16	17.96 1.11	19.79 .17	7.13 .13
29.2	51.68 .13	18.48 .13	39.08 .15	41.08 .20	32.95 .19	19.08 1.10	19.62 .17	6.99 .14
Feb. 8.2	51.56 .13	18.35 .12	38.93 .15	40.87 .19	32.78 .17	20.16 1.07	19.45 .18	6.84 .14
18.2	51.43 − .12	18.24 − .10	38.79 − .14	40.69 − .17	32.61 − .16	21.21 +1.03	19.26 − .19	6.70 − .14
. .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Sept. 25.6	55.10 + .14	21.81 + .14	42.23 + .15	45.04 + .20	36.63 + .18	12.71 − .58	23.18 + .21	9.93 + .18
Oct. 5.6	55.23 .10	21.93 .11	42.36 .11	45.22 .16	36.80 .16	12.19 .45	23.37 .17	10.09 .14
15.5	55.31 .07	22.02 .08	42.45 .09	45.37 .13	36.95 .13	11.82 .38	23.51 .13	10.20 .10
25.5	55.37 + .04	22.08 + .05	42.53 + .06	45.48 + .09	37.06 + .09	11.63 − .11	23.63 + .10	10.29 + .08
Nov. 4.5	55.39 + .02	22.11 + .02	42.56 + .02	45.54 .04	37.13 .06	11.60 + .07	23.71 .06	10.36 .05
14.4	55.40 − .01	22.12 − .01	42.56 − .01	45.57 + .01	37.17 + .02	11.77 .27	23.75 + .02	10.38 + .02
24.4	55.36 .04	22.09 .04	42.55 .04	45.56 − .03	37.18 − .02	12.14 .45	23.76 − .01	10.39 − .01
Dec. 4.4	55.32 .06	22.04 .06	42.49 .06	45.51 .07	37.12 .05	12.67 .61	23.73 .04	10.36 .04
14.4	55.24 − .08	21.97 − .08	42.42 − .08	45.42 − .10	37.06 − .08	13.37 + .78	23.67 − .08	10.31 − .07
24.3	55.15 .10	21.88 .10	42.33 .10	45.30 .13	36.96 .11	14.22 .92	23.58 .11	10.22 .09
34.3	55.04 − .11	21.77 − .12	42.21 − .12	45.15 − .16	36.83 − .14	15.21 +1.06	23.46 − .13	10.12 − .10

Mean Solar Date.	δ Hydri.	δ Ceti.	μ Hydri.	θ Persei.	σ Arietis.	47 Cephei.	ϵ Arietis.	β Persei, (*Algol.*)
	159° 12′	90° 11′	169° 37′	41° 16′	75° 24′	11° 3′	69° 8′	49° 30′
	h m	h m	h m	h m	h m	h m	h m	h m
	2 19	2 33	2 34	2 36	2 44	2 50	2 52	3 0
	s	s	s	s	s	s	s	s
(Dec. 30.3)	40.61 − .53	27.77 − .09	14.17 −1.16	11.33 − .15	60.62 − .08	34.74 − .71	29.98 − .08	32.14 − .11
Jan. 9.3	40.06 .57	27.67 .11	12.98 1.21	11.16 .19	60.53 .10	33.97 .83	29.89 .10	32.02 .14
19.3	39.47 .59	27.54 .13	11.74 1.25	10.95 .22	60.41 .12	33.08 .94	29.77 .14	31.87 .18
29.3	38.88 .58	27.41 .14	10.47 1.26	10.72 .24	60.28 .14	32.09 1.01	29.61 .15	31.67 .20
Feb. 8.2	38.30 .53	27.26 .15	9.22 1.24	10.48 .25	60.13 .15	31.06 1.04	29.47 .15	31.47 .21
18.2	37.83 − .42	27.11 − .15	7.99 −1.22	10.23 − .25	59.98 − .15	30.02 −1.04	29.31 − .15	31.26 − .21
. .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Sept. 25.6	42.50 + .35	30.21 + .19	14.84 + .67	14.66 + .29	63.14 + .21	41.35 + .94	32.54 + .22	35.01 + .26
Oct. 5.6	42.80 .25	30.39 .16	15.44 .51	14.93 .24	63.34 .18	42.22 .80	32.75 .19	35.26 .24
15.5	43.01 .15	30.54 .12	15.86 .31	15.15 .20	63.51 .16	42.94 .65	32.92 .16	35.49 .21
25.5	43.10 + .04	30.64 + .09	16.05 + .08	15.33 + .16	63.65 + .13	43.52 + .50	33.07 + .14	35.67 + .17
Nov. 4.5	43.09 − .07	30.72 .07	16.01 − .15	15.46 .10	63.76 .09	43.94 .31	33.19 .10	35.82 .13
14.5	42.97 .18	30.78 .04	15.74 .37	15.54 .06	63.83 .06	44.14 + .13	33.27 .06	35.94 .09
24.4	42.73 .27	30.81 + .01	15.28 .57	15.58 + .01	63.87 + .02	44.20 − .05	33.32 .04	36.01 .05
Dec. 4.4	42.42 .36	30.80 − .02	14.59 .77	15.56 − .04	63.87 − .01	44.04 .26	33.35 + .01	36.04 + .01
14.4	42.01 − .44	30.76 − .05	13.75 − .92	15.51 − .08	63.86 − .03	43.69 − .45	33.34 − .02	36.02 − .04
24.4	41.54 .50	30.70 .08	12.74 1.06	15.39 .14	63.81 .07	43.13 .63	33.30 .06	35.96 .08
34.3	41.02 − .53	30.61 − .10	11.63 −1.13	15.24 − .17	63.72 − .10	42.44 − .77	33.21 − .10	35.86 − .12

APPARENT RIGHT ASCENSIONS AND APPROXIMATE NORTH POLAR DISTANCES, FOR TRANSIT AT WASHINGTON.

Mean Solar Date.	ρ Octantis, S. P.	ι Hydri.	f Tauri.	γ Camelop.	γ Hydri.	ε Persei.	A^1 Tauri.	o Persei.
	185° 56′ h m 3 16	167° 49′ h m 3 18	77° 28′ h m 3 24	19° 2′ h m 3 37	164° 36′ h m 3 49	50° 20′ h m 3 49	68° 15′ h m 3 57	42° 36′ h m 4 0
	s	s	s	s	s	s	s	s
(Dec. 30.4)	14.68 +2.22	58.30 − .88	23.59 − .05	60.76 − .27	7.84 − .64	58.99 − .06	45.57 − .03	9.02 − .05
Jan. 9.3	16.95 2.32	57.37 .98	23.52 .09	60.44 .37	7.17 .70	58.91 .10	45.52 .07	8.94 .11
19.3	19.33 2.44	56.35 1.05	23.41 .12	60.03 .45	6.43 .78	58.79 .14	45.43 .11	8.79 .17
29.3	21.84 2.51	55.27 1.10	23.28 .14	59.53 .52	5.60 .85	58.62 .18	45.30 .14	8.60 .21
Feb. 8.2	24.35 2.51	54.16 1.12	23.14 .16	58.99 .56	4.73 .89	58.43 .20	45.15 .16	8.37 .24
18.2	26.86 +2.46	53.03 −1.10	22.97 − .17	58.41 − .58	3.82 − .91	58.22 − .22	44.98 − .17	8.13 − .25
28.2	29.27 +2.35	51.97 −1.01	22.81 − .16	57.82 − .59	2.91 − .91	58.00 − .23	44.80 − .18	7.88 − .26
. .	. . . .	. . . .	. . . .	. . . .	. . . .	. . . .	. . . .	. . . .
Oct. 5.6	22.87 −1.05	57.67 + .63	26.00 + .21	65.20 + .62	6.48 + .60	61.67 + .31	47.87 + .24	11.82 + .32
15.6	21.95 .74	58.21 .45	26.20 .18	65.78 .54	7.02 .48	61.96 .27	48.11 .23	12.13 .31
25.5	21.40 − .35	58.57 + .26	26.37 + .16	66.27 + .45	7.43 + .34	62.20 + .23	48.34 + .20	12.43 + .28
Nov. 4.5	21.26 + .08	58.73 + .07	26.51 .13	66.68 .36	7.69 .20	62.41 .20	48.50 .16	12.68 .23
14.5	21.57 .51	58.70 − .13	26.63 .10	66.98 .25	7.82 + .06	62.59 .16	48.66 .14	12.88 .18
24.5	22.28 .91	58.50 .30	26.71 .06	67.19 .14	7.81 − .08	62.73 .12	48.79 .11	13.05 .14
Dec. 4.4	23.40 1.33	58.09 .50	26.75 + .03	67.27 + .02	7.65 .24	62.82 .07	48.89 .07	13.16 .09
14.4	24.92 +1.68	57.51 − .65	26.77 .00	67.24 − .09	7.34 − .39	62.87 + .02	48.93 + .02	13.22 + .04
24.4	26.74 1.95	56.79 .79	26.75 − .04	67.09 .21	6.87 .52	62.86 − .02	48.94 − .01	13.23 − .02
34.4	28.82 +2.18	55.94 − .91	26.69 − .08	66.82 − .33	6.30 − .60	62.82 − .05	48.92 − .04	13.17 − .09

Mean Solar Date.	o^1 Eridani.	η Urs. Min., S. P.	m Persei.	δ Mensæ.	τ Tauri.	i Tauri.	ζ Aurigæ.	β Eridani.
	97° 9′ h m 4 6	346° 2′ h m 4 20	47° 11′ h m 4 25	170° 29′ h m 4 25	67° 16′ h m 4 35	71° 22′ h m 4 44	49° 6′ h m 4 54	95° 14′ h m 5 2
	s	s	s	s	s	s	s	s
(Dec. 30.4)	8.37 − .04	52.31 + .45	9.92 − .02	64.41 − .91	12.30 .00	30.75 + .01	16.94 + .02	5.15 + .01
Jan. 9.3	8.31 .08	52.84 .60	9.87 .08	63.41 1.09	12.27 − .04	30.74 − .04	16.93 − .04	5.14 − .03
19.3	8.22 .11	53.52 .75	9.76 .12	62.24 1.24	12.21 .08	30.68 .08	16.86 .09	5.08 .08
29.3	8.10 .14	54.33 .84	9.62 .17	60.93 1.36	12.10 .12	30.59 .11	16.74 .14	4.99 .10
Feb. 8.3	7.95 .15	55.19 .90	9.42 .21	59.53 1.44	11.96 .15	30.45 .14	16.57 .18	4.87 .14
18.2	7.80 − .17	56.13 + .95	9.21 − .23	58.06 −1.49	11.80 − .17	30.30 − .17	16.37 − .21	4.71 − .16
28.2	7.61 .18	57.08 .94	8.98 .24	56.55 1.49	11.61 .18	30.11 .18	16.14 .23	4.54 .17
Mar. 10.2	7.44 − .17	58.01 + .92	8.73 − .25	55.08 −1.44	11.43 − .18	29.93 − .18	15.91 − .23	4.36 − .18
. .	. . . .	. . . .	. . . .	. . . .	. . . .	. . . .	. . . .	. . . .
Oct. 15.6	10.40 + .20	51.53 − .73	12.70 + .32	59.94 + .89	14.60 + .26	32.92 + .26	19.43 + .33	6.82 + .22
25.6	10.59 + .18	50.86 − .61	13.00 + .28	60.73 + .68	14.85 + .24	33.17 + .24	19.75 + .31	7.04 + .21
Nov. 4.5	10.75 .16	50.33 .47	13.26 .25	61.31 .47	15.08 .22	33.39 .22	20.05 .28	7.26 .21
14.5	10.90 .14	49.92 .32	13.50 .21	61.66 + .22	15.27 .19	33.60 .19	20.30 .24	7.46 .18
24.5	11.02 .10	49.68 − .15	13.68 .16	61.75 − .03	15.44 .15	33.77 .15	20.53 .21	7.62 .15
Dec. 4.5	11.09 .05	49.62 + .03	13.82 .12	61.59 .28	15.57 .12	33.90 .12	20.71 .15	7.76 .12
14.4	11.12 + .02	49.74 + .20	13.91 + .07	61.18 − .53	15.65 + .08	34.00 + .08	20.83 + .10	7.85 + .07
24.4	11.13 − .01	50.02 .37	13.95 + .01	60.54 .75	15.69 + .03	34.05 + .03	20.90 + .05	7.90 + .03
34.4	11.09 − .05	50.48 + .56	13.93 − .05	59.68 − .97	15.69 − .01	34.06 − .01	20.92 .00	7.91 − .01

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Mean Solar Date.	τ Orionis.	Groombr. 944.	χ Aurigæ.	κ Orionis.	ν Aurigæ.	δ Doradus.	β Aurigæ.	θ Aurigæ.
	96° 58′	4° 52′	57° 54′	99° 43′	50° 53′	155° 47′	45° 4′	52° 48′
	h m 5 11	h m 5 24	h m 5 25	h m 5 42	h m 5 43	h m 5 44	h m 5 50	h m 5 51
	s	s	s	s	s	s	s	s
(Dec. 30.4)	54.84 + .02	41.28 − .22	5.77 + .06	11.85 + .06	21.78 + .07	37.15 − .13	55.74 + .08	43.54 + .08
Jan. 9.4	54.84 − .02	40.82 .70	5.80 .00	11.88 .00	21.82 + .01	36.97 .23	55.79 + .02	43.59 + .02
19.4	54.79 .06	39.89 1.16	5.77 − .05	11.84 − .05	21.80 − .04	36.70 .32	55.77 − .04	43.59 − .03
29.4	54.71 .10	38.52 1.58	5.70 .10	11.78 .09	21.73 .09	36.33 .40	55.70 .10	43.52 .09
Feb. 8.3	54.58 .14	36.75 1.94	5.57 .14	11.66 .13	21.61 .14	35.90 .46	55.57 .15	43.42 .13
18.3	54.43 − .16	34.66 −2.22	5.41 − .18	11.52 − .15	21.44 − .18	35.40 − .52	55.39 − .20	43.27 − .17
28.3	54.25 .18	32.34 2.39	5.22 .20	11.36 .17	21.25 .21	34.85 .56	55.16 .24	43.07 .21
Mar. 10.3	54.07 .19	29.92 2.45	5.01 .21	11.17 .18	21.02 .23	34.29 .57	54.91 .25	42.85 .22
20.2	53.88 − .19	27.47 −2.44	4.81 − .19	10.99 − .18	20.79 − .24	33.72 − .56	54.67 − .23	42.63 − .22
. .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Oct. 25.6	56.64 + .22	50.33 +2.60	8.18 + .30	13.43 + .24	24.19 + .32	35.95 + .46	58.21 + .37	45.86 + .33
Nov. 4.6	56.86 .21	52.77 2.27	8.47 .28	13.67 .23	24.51 .31	36.38 .40	58.57 .35	46.18 .31
14.6	57.07 .19	54.87 1.93	8.74 .25	13.90 .21	24.82 .29	36.74 .33	58.91 .32	46.48 .29
24.5	57.24 .16	56.64 1.56	8.97 .22	14.10 .18	25.09 .25	37.03 .24	59.21 .28	46.76 .26
Dec. 4.5	57.39 .12	57.97 1.10	9.17 .18	14.27 .15	25.32 .21	37.21 .13	59.47 .23	47.01 .22
14.5	57.48 + .08	58.83 + .60	9.32 + .13	14.40 + .11	25.51 + .16	37.30 + .03	59.67 + .17	47.20 + .16
24.5	57.55 + .04	59.17 + .09	9.43 .08	14.49 .07	25.64 .10	37.28 − .07	59.81 .12	47.33 .11
34.4	57.57 .00	59.02 − .39	9.48 + .02	14.53 + .02	25.71 + .04	37.17 − .16	59.90 + .07	47.42 + .07

Mean Solar Date.	η Geminor.	ψ¹ Aurigæ.	ν Geminor.	χ Draconis, S.P.	ε Geminor.	ψ⁵ Aurigæ.	θ Geminor.	ζ Mensæ.
	67° 28′	40° 39′	69° 43′	342° 41′	64° 45′	46° 18′	55° 54′	170° 41′
	h m 6 7	h m 6 15	h m 6 21	h m 6 23	h m 6 36	h m 6 38	h m 6 45	h m 6 49
	s	s	s	s	s	s	s	s
(Dec. 30.5)	47.97 + .10	52.17 + .13	59.99 + .11	6.11 + .02	42.99 + .13	17.20 + .14	3.59 + .13	57.82 − .16
Jan. 9.5	48.04 + .04	52.26 + .05	60.07 + .05	6.20 .16	43.09 .07	17.31 .07	3.70 .09	57.55 .38
19.4	48.05 − .01	52.27 − .02	60.09 .00	6.42 .30	43.13 + .02	17.35 + .02	3.76 + .03	57.05 .63
29.4	48.01 .06	52.22 .08	60.06 − .05	6.80 .44	43.12 − .03	17.34 − .04	3.75 − .03	56.29 .87
Feb. 8.4	47.92 .10	52.10 .15	60.00 .09	7.29 .54	43.06 .08	17.26 .11	3.70 .08	55.32 1.06
18.4	47.80 − .14	51.93 − .21	59.88 − .13	7.87 + .63	42.95 − .13	17.12 − .16	3.58 − .13	54.17 −1.22
28.3	47.64 .17	51.69 .25	59.74 .16	8.55 .71	42.80 .16	16.93 .19	3.44 .16	52.88 1.35
Mar. 10.3	47.47 .18	51.43 .27	59.56 .18	9.29 .75	42.64 .18	16.73 .23	3.25 .19	51.47 1.45
20.3	47.28 .19	51.15 .28	59.37 .18	10.04 .77	42.44 .19	16.48 .25	3.05 .21	49.99 1.50
30.3	47.09 .19	50.87 .27	59.19 .17	10.82 .77	42.26 .16	16.23 .25	2.83 .22	48.47 1.52
Apr. 9.2	46.91 − .18	50.61 − .24	59.03 − .15	11.58 + .74	42.13 − .10	15.98 − .24	2.61 − .22	46.96 −1.49
. .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Nov. 14.6	50.50 + .26	55.32 + .35	62.41 + .27	6.49 − .58	45.44 + .27	20.01 + .36	6.15 + .31	51.29 +1.12
24.6	50.75 .24	55.66 .33	62.67 .25	5.97 .46	45.71 .26	20.35 .32	6.45 .29	52.19 .78
Dec. 4.6	50.97 .21	55.97 .28	62.91 .22	5.58 .33	45.97 .24	20.66 .29	6.73 .27	52.85 .55
14.5	51.16 + .17	56.23 + .23	63.10 + .18	5.30 − .21	46.19 + .20	20.92 + .24	6.98 + .23	53.30 + .31
24.5	51.30 .12	56.42 .16	63.26 .13	5.17 − .06	46.36 .15	21.13 .18	7.18 .18	53.46 + .03
34.5	51.39 + .07	56.54 + .08	63.36 + .07	5.18 + .08	46.49 + .10	21.28 + .12	7.33 + .13	53.36 − .23

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Mean Solar Date.	ζ Geminor.	63 Aurigæ.	25 Camelop.	γ^2 Volantis.	β Can. Min.	Groombr. 1374.	26 Lyncis.	ω^1 Cancri.
	69° 15′	50° 29′	7° 22′	160° 18′	81° 28′	15° 46′	42° 8′	64° 17′
	h m 6 57	h m 7 3	h m 7 6	h m 7 9	h m 7 20	h m 7 46	h m 7 46	h m 7 53
	s	s	s	s	s	s	s	s
(Dec. 30.5)	9.21 + .13	35.31 + .17	24.98 + .66	48.85 + .06	47.48 + .17	9.39 + .51	10.24 + .21	50.00 + .21
Jan. 9.5	9.32 .09	35.45 .11	25.46 + .30	48.85 − .06	47.62 .11	9.80 .31	10.43 .17	50.18 .16
19.5	9.39 + .04	35.53 + .05	25.58 − .05	48.73 .19	47.69 + .05	10.01 + .14	10.57 .11	50.31 .10
29.5	9.39 − .01	35.55 − .01	25.37 .38	48.47 .31	47.72 .00	10.08 − .01	10.65 + .03	50.37 + .04
Feb. 8.4	9.36 .06	35.50 .07	24.81 .71	48.11 .41	47.70 − .05	9.99 .18	10.64 − .04	50.39 − .01
18.4	9.27 − .10	35.41 − .12	23.95 −1.00	47.65 − .51	47.63 − .09	9.71 − .34	10.57 − .10	50.35 − .06
28.4	9.14 .14	35.25 .17	22.81 1.25	47.10 .59	47.52 .12	9.31 .46	10.43 .17	50.27 .10
Mar. 10.3	8.98 .16	35.06 .20	21.46 1.43	46.48 .64	47.39 .15	8.78 .58	10.24 .21	50.14 .14
20.3	8.82 .18	34.85 .22	19.96 1.53	45.83 .67	47.22 .17	8.15 .66	10.01 .24	49.98 .17
30.3	8.62 .18	34.62 .23	18.41 1.58	45.15 .69	47.06 .17	7.46 .70	9.77 .25	49.81 .18
Apr. 9.3	8.45 − .16	34.39 − .22	16.81 −1.58	44.47 − .70	46.88 − .17	6.75 − .72	9.51 − .26	49.64 − .19
19.2	8.28 − .14	34.18 − .20	15.26 −1.52	43.75 − .72	46.72 − .15	6.03 − .72	9.25 − .26	49.43 − .20
. .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Nov. 24.6	11.76 + .27	38.21 + .34	32.43 +1.62	47.52 + .46	49.74 + .27	13.24 + .89	13.04 + .41	52.40 + .33
Dec. 4.6	12.02 .25	38.53 .29	33.96 1.42	47.94 .38	50.00 .25	14.08 .79	13.43 .38	52.71 .30
14.6	12.25 + .22	38.81 + .25	35.27 +1.16	48.27 + .27	50.24 + .22	14.82 + .68	13.79 + .33	52.99 + .27
24.6	12.44 .17	39.04 .20	36.27 .84	48.47 .14	50.43 .14	15.44 .56	14.08 .28	53.24 .23
34.5	12.59 + .13	39.21 + .14	36.95 + .51	48.55 + .02	50.51 + .02	15.94 + .44	14.34 + .23	53.44 + .18

Mean Solar Date.	ζ^1 Cancri.	β Cancri.	30 Monocerotis.	θ Chamæleontis.	σ Hydræ.	γ Cancri.	σ^3 Cancri, (*mean*).	θ Hydræ.
	72° 0′	80° 27′	93° 31′	167° 6′	86° 15′	68° 6′	58° 58′	87° 11′
	h m 8 5	h m 8 10	h m 8 19	h m 8 24	h m 8 32	h m 8 36	h m 8 47	h m 9 8
	s	s	s	s	s	s	s	s
(Dec. 30.6)	29.02 + .22	9.22 + .21	48.04 + .21	14.86 + .36	37.59 + .21	29.72 + .23	5.01 + .28	15.59 + .23
Jan. 9.5	29.21 .16	9.40 .15	48.22 .15	15.13 + .18	37.78 .17	29.93 .20	5.26 .22	15.80 .20
19.5	29.33 .10	9.52 .10	48.34 .10	15.22 .00	37.93 .12	30.11 .15	5.45 .16	15.98 .16
29.5	29.42 + .05	9.60 + .05	48.42 + .05	15.13 − .18	38.03 .07	30.21 .08	5.58 .11	16.11 .11
Feb. 8.5	29.44 .00	9.62 .00	48.44 .00	14.85 .37	38.07 + .02	30.27 + .03	5.66 + .05	16.19 .06
18.4	29.42 − .05	9.60 − .04	48.43 − .04	14.40 − .52	38.07 − .03	30.27 − .02	5.67 − .02	16.23 + .01
28.4	29.34 .10	9.53 .08	48.36 .08	13.81 .66	38.01 .07	30.23 .07	5.62 .07	16.20 − .04
Mar. 10.4	29.23 .13	9.43 .12	48.26 .12	13.09 .78	37.93 .10	30.14 .11	5.53 .10	16.15 .08
20.4	29.09 .15	9.29 .15	48.12 .14	12.25 .87	37.81 .13	30.02 .14	5.41 .14	16.05 .10
30.3	28.93 .16	9.14 .16	47.97 .15	11.35 .94	37.67 .15	29.87 .16	5.25 .17	15.94 .12
Apr. 9.3	28.76 − .17	8.97 − .17	47.82 − .16	10.37 − .99	37.51 − .16	29.70 − .17	5.07 − .18	15.81 − .14
19.3	28.59 .17	8.81 .16	47.65 .16	9.38 1.00	37.35 .16	29.54 .17	4.90 .18	15.65 .15
29.3	28.43 .16	8.65 .15	47.50 .14	8.38 .99	37.20 .15	29.37 .16	4.71 .17	15.51 .15
May 9.2	28.28 − .14	8.52 − .12	47.36 − .13	7.40 − .96	37.06 − .13	29.21 − .15	4.55 − .15	15.36 − .14

APPARENT RIGHT ASCENSIONS AND APPROXIMATE NORTH POLAR DISTANCES, FOR TRANSIT AT WASHINGTON.

Mean Solar Date.	β Argus.	α Lyncis.	10 Leonis Minoris.	o Leonis.	ζ Chamæleontis.	19 Leonis Minoris.	π Leonis.	λ Ursæ Majoris.
	159° 14′	55° 7′	53° 5′	79° 34′	170° 25′	48° 23′	81° 23′	46° 30′
	h m 9 11	h m 9 13	h m 9 27	h m 9 34	h m 9 37	h m 9 50	h m 9 54	h m 10 10
	s	s	s	s	s	s	s	s
(Dec. 30.6	57.73 + .39	54.14 + .30	1.81 + .30	53.08 + .31	25.34 + .90	29.45 + .34	0.53 + .98	0.63 + .37
Jan. 9.6	58.08 .28	54.41 .25	2.09 .27	53.36 .25	26.12 .66	29.77 .30	0.79 .25	0.98 .33
19.6	58.31 .16	54.64 .20	2.34 .22	53.58 .19	26.66 .43	30.04 .25	1.02 .20	1.29 .28
29.5	58.44 + .04	54.80 .13	2.52 .15	53.73 .14	26.98 + .20	30.27 .20	1.19 .15	1.54 .22
Feb. 8.5	58.44 − .07	54.90 .07	2.64 .09	53.85 .09	27.05 − .04	30.43 .13	1.32 .10	1.72 .15
18.5	58.33 − .18	54.94 + .02	2.70 + .03	53.90 + .04	26.90 − .26	30.52 + .06	1.39 + .06	1.83 + .09
28.4	58.11 .28	54.93 − .03	2.70 − .03	53.92 − .01	26.52 .48	30.54 .00	1.43 + .01	1.89 + .03
Mar. 10.4	57.79 .37	54.87 .09	2.64 .08	53.88 .06	25.95 .66	30.51 − .06	1.41 − .04	1.88 − .04
20.4	57.39 .45	54.75 .14	2.54 .12	53.80 .09	25.20 .83	30.42 .11	1.36 .07	1.81 .09
30.4	56.93 .50	54.60 .16	2.40 .15	53.70 .11	24.29 .98	30.29 .15	1.27 .10	1.69 .14
Apr. 9.3	56.42 − .54	54.43 − .17	2.24 − .17	53.58 − .13	23.24 −1.09	30.12 − .18	1.17 − .12	1.54 − .17
19.3	55.88 .57	54.26 .18	2.05 .18	53.44 .14	22.12 1.16	29.93 .19	1.03 .13	1.36 .19
29.3	55.32 .59	54.07 .19	1.87 .19	53.30 .14	20.91 1.24	29.73 .20	0.90 .13	1.16 .20
May 9.3	54.74 .59	53.88 .19	1.68 .18	53.16 .14	19.65 1.27	29.53 .20	0.77 .13	0.95 .21
19.2	54.16 − .56	53.70 − .17	1.50 − .17	53.03 − .13	18.38 −1.26	29.34 − .19	0.64 − .12	0.74 − .21

Mean Solar Date.	μ Hydræ.	β Leonis Minoris.	α Antliæ.	β Octantis, S. P.	41 Leonis Minoris.	d^3 Chamæleontis.	46 Leonis Minoris.	Groombr. 1706.
	106° 14′	52° 41′	120° 28′	188° 0′	66° 12′	169° 55′	55° 9′	11° 36′
	h m 10 20	h m 10 21	h m 10 21	h m 10 33	h m 10 37	h m 10 44	h m 10 46	h m 10 50
	s	s	s	s	s	s	s	s
Jan. 19.6	25.40 + .22	5.95 + .27	47.62 + .22	48.01 − .72	2.19 + .26	46.68 + .80	44.93 + .29	33.96 + .91
29.6	25.59 .17	6.20 .22	47.82 .18	47.41 .48	2.42 .21	47.38 .60	45.20 .24	34.79 .74
Feb. 8.5	25.73 .12	6.38 .15	47.97 .13	47.05 − .24	2.61 .16	47.88 .40	45.41 .18	35.44 .55
18.5	25.83 .08	6.50 .10	48.07 .08	46.94 .00	2.73 .11	48.17 + .19	45.56 .12	35.88 .34
28.5	25.88 + .03	6.57 + .04	48.12 + .02	47.05 + .23	2.82 + .06	48.25 − .02	45.65 .06	36.11 + .13
Mar. 10.5	25.88 − .02	6.57 − .01	48.10 − .03	47.40 + .47	2.84 .00	48.13 − .22	45.68 + .01	36.13 − .08
20.4	25.85 .05	6.54 .06	48.06 .06	48.00 .70	2.82 − .04	47.81 .41	45.67 − .04	35.94 .29
30.4	25.78 .08	6.45 .11	47.98 .10	48.79 .90	2.77 .07	47.32 .57	45.61 .08	35.56 .47
Apr. 9.4	25.69 .11	6.32 .14	47.87 .12	49.81 1.10	2.68 .10	46.67 .72	45.51 .11	35.00 .63
19.4	25.57 .13	6.16 .17	47.74 .14	50.98 1.25	2.56 .12	45.89 .84	45.39 .14	34.30 .76
29.3	25.44 − .13	5.99 − .18	47.59 − .15	52.32 +1.40	2 44 − .13	44.99 − .95	45.24 − .16	33.49 − .85
May 9.3	25.31 .13	5.81 .18	47.44 .16	53.77 1.50	2.30 .14	43.99 1.03	45.08 .16	32.60 .92
19.3	25.19 .13	5.64 .17	47.28 .16	55.32 1.58	2.16 .14	42.92 1.08	44.92 .16	31.66 .95
29.3	25.05 .13	5.48 .16	47.13 .15	56.93 1.62	2.03 .13	41.83 1.11	44.76 .16	30.70 .94
June 8.2	24.93 − .12	5.32 − .15	46.98 − .15	58.55 +1.62	1.90 − .12	40.69 −1.14	44.60 − .15	29.79 − .86

APPARENT RIGHT ASCENSIONS AND APPROXIMATE NORTH POLAR DISTANCES, FOR TRANSIT AT WASHINGTON.

Mean Solar Date.	η Octantis.	p^3 Leonis.	ψ Urs. Maj.	ν Urs. Maj.	ξ Hydræ.	χ Urs. Maj.	π Virginis.	ϵ Corvi.
	173° 58′	87° 24′	44° 52′	56° 16′	121° 12′	41° 34′	82° 44′	111° 58′
	h m 11 0	h m 11 0	h m 11 3	h m 11 12	h m 11 27	h m 11 39	h m 11 54	h m 12 4
	s	s	s	s	s	s	s	s
Feb. 8.6	18.64 + .76	55.60 + .17	4.42 + .22	8.95 + .20	14.67 + .20	51.66 + .27	51.89 + .21	6.03 + .23
18.6	19.23 .42	55.75 .12	4.61 .16	9.12 .15	14.85 .16	51.90 .21	52.08 .17	6.24 .19
28.5	19.48 + .09	55.84 .07	4.74 .10	9.24 .10	14.98 .11	52.08 .15	52.23 .13	6.40 .14
Mar. 10.5	19.41 − .24	55.89 + .03	4.80 + .03	9.31 + .05	15.06 .06	52.19 .08	52.34 .09	6.51 .10
20.5	19.00 .56	55.90 − .01	4.80 − .03	9.33 .00	15.09 + .01	52.24 + .02	52.41 .05	6.59 .06
30.4	18.31 − .84	55.87 − .04	4.74 − .08	9.30 − .05	15.09 − .02	52.23 − .04	52.44 + .01	6.63 + .02
Apr. 9.4	17.32 1.11	55.81 .06	4.64 .12	9.23 .09	15.05 .06	52.16 .09	52.44 − .03	6.64 − .01
19.4	16.11 1.33	55.74 .08	4.50 .16	9.13 .12	14.98 .09	52.05 .13	52.39 .05	6.62 .03
29.4	14.66 1.54	55.65 .10	4.33 .18	9.00 .14	14.88 .11	51.90 .17	52.34 .07	6.58 .06
May 9.3	13.05 1.69	55.54 .11	4.14 .19	8.86 .15	14.76 .12	51.71 .20	52.26 .08	6.49 .08
19.3	11.28 −1.82	55.43 − .12	3.94 − .20	8.71 − .16	14.64 − .13	51.51 − .21	52.18 − .10	6.41 − .09
29.3	9.43 1.88	55.31 .12	3.74 .20	8.55 .16	14.51 .14	51.30 .22	52.07 .11	6.31 .10
June 8.3	7.52 1.90	55.19 .10	3.55 .19	8.40 .15	14.35 .14	51.07 .22	51.97 .11	6.21 .12
18.2	5.63 −1.88	55.10 − .09	3.36 − .18	8.25 − .15	14.22 − .13	50.86 − .21	51.86 − .10	6.08 − .13

Mean Solar Date.	2 Can. Ven.	6 Urs. Min.	δ^2 Corvi.	β Can. Ven.	γ Virginis, (*mean.*)	31 Cor. Bor.	γ Cassiop., S. P.	43 Cephei, S. P.
	48° 41′	1° 39′	105° 51′	48° 0′	90° 48′	61° 49′	330° 5′	355° 37′
	h m 12 10	h m 12 14	h m 12 23	h m 12 28	h m 12 35	h m 12 45	h m 12 49	h m 12 52
	s	s	s	s	s	s	s	s
Feb. 8.6	15.02 + .27	41.69 +5.44	48.04 + .24	10.46 + .30	43.11 + .26	59.15 + .27	36.21 − .33	47.31 −2.32
18.6	15.27 .23	46.56 4.28	48.26 .21	10.73 .24	43.34 .21	59.40 .23	35.93 .23	45.19 1.92
28.6	15.47 .17	50.23 3.04	48.45 .16	10.94 .20	43.52 .17	59.61 .19	35.73 .17	43.47 1.50
Mar. 10.5	15.61 .12	52.62 1.70	48.58 .12	11.12 .15	43.67 .13	59.78 .15	35.59 .11	42.19 1.02
20.5	15.70 .06	53.58 + .26	48.68 .08	11.23 .08	43.78 .09	59.90 .10	35.54 − .03	41.43 − .50
30.5	15.73 + .01	53.15 −1.12	48.74 + .04	11.28 + .02	43.84 + .05	59.98 + .06	35.54 + .05	41.20 + .06
Apr. 9.5	15.72 − .04	51.35 2.45	48.76 + .01	11.28 − .02	43.88 + .02	60.02 + .02	35.64 .15	41.55 .60
19.4	15.66 .08	48.27 3.67	48.76 − .01	11.24 .06	43.88 − .01	60.01 − .02	35.83 .22	42.40 1.10
29.4	15.56 .11	44.03 4.72	48.74 .04	11.16 .10	43.86 .03	59.98 .05	36.09 .30	43.75 1.58
May 9.4	15.44 .14	38.81 5.65	48.68 .06	11.04 .13	43.81 .05	59.91 .07	36.43 .37	45.55 2.00
19.4	15.29 − .16	32.78 −6.36	48.61 − .07	10.91 − .15	43.76 − .07	59.83 − .09	36.83 + .43	47.74 +2.36
29.3	15.12 .17	26.15 6.85	48.53 .09	10.74 .17	43.68 .08	59.73 .11	37.29 .47	50.25 2.63
June 8.3	14.95 .18	19.15 7.13	48.43 .10	10.58 .17	43.59 .09	59.61 .12	37.77 .51	52.99 2.82
18.3	14.77 − .18	11.92 −7.26	48.33 − .10	10.40 − .17	43.49 − .10	59.49 − .12	38.31 + .57	55.89 +2.94

APPARENT RIGHT ASCENSIONS AND APPROXIMATE NORTH POLAR DISTANCES, FOR TRANSIT AT WASHINGTON.

Mean Solar Date.	δ Muscæ.	ε Virginis.	20 Can. Ven.	κ Octantis.	B.A.C. 4536.	m Virginis.	θ Apodis.	π Hydræ.
	160° 55′ h m 12 54	78° 24′ h m 12 56	48° 48′ h m 13 12	175° 11′ h m 13 22	52° 13′ h m 13 29	98° 6′ h m 13 35	166° 14′ h m 13 53	116° 7′ h m 13 59
	s	s	s	s	s	s	s	s
Feb. 28.6	16.20 + .44	20.70 + .19	17.46 + .21	23.83 +1.90	33.93 + .24	27.68 + .20	59.62 + .83	42.00 + .23
Mar. 10.6	16.60 .35	20.86 .15	17.66 .19	25.56 1.56	34.15 .20	27.87 .18	60.39 .70	42.23 .22
20.6	16.90 .25	20.99 .11	17.84 .14	26.94 1.20	34.32 .16	28.03 .15	61.03 .58	42.45 .19
30.5	17.10 .15	21.07 .07	17.94 .09	27.93 .80	34.46 .12	28.17 .12	61.55 .45	42.62 .15
Apr. 9.5	17.20 + .05	21.12 .04	18.01 + .04	28.54 .42	34.55 .06	28.27 .09	61.94 .32	42.75 .12
19.5	17.21 − .04	21.15 + .01	18.02 .00	28.77 + .04	34.58 + .02	28.34 + .05	62.19 + .19	42.85 + .09
29.5	17.13 .13	21.13 − .02	18.00 − .05	28.61 − .35	34.58 − .02	28.37 + .02	62.32 + .06	42.93 .06
May 9.4	16.96 .21	21.11 .04	17.93 .08	28.06 .73	34.54 .05	28.39 .00	62.30 − .08	42.97 + .03
19.4	16.72 .29	21.05 .06	17.84 .12	27.14 1.08	34.48 .08	28.37 − .03	62.16 .20	42.98 .00
29.4	16.39 .36	20.98 .08	17.72 .14	25.90 1.39	34.38 .12	28.34 .05	61.90 .32	42.97 − .02
June 8.4	16.01 − .41	20.89 − .09	17.57 − .16	24.37 −1.68	34.25 − .14	28.28 − .06	61.53 − .43	42.94 − .05
18.3	15.57 .46	20.78 .11	17.40 .17	22.54 1.92	34.11 .15	28.22 .08	61.04 .54	42.87 .09
28.3	15.09 .48	20.66 .12	17.23 .18	20.54 2.10	33.95 .17	28.12 .10	60.46 .62	42.77 .11
July 8.3	14.62 − .46	20.55 − .10	17.04 − .20	18.34 −2.30	33.78 − .18	28.02 − .11	59.81 − .68	42.66 − .12

Mean Solar Date.	d Bootis.	κ Virginis.	δ Octantis.	4 Urs. Min.	λ Bootis.	λ Virginis.	α Apodis.	μ Hydri, S. P.
	64° 21′ h m 14 5	99° 43′ h m 14 6	173° 8′ h m 14 8	11° 54′ h m 14 9	43° 22′ h m 14 11	102° 50′ h m 14 12	168° 32′ h m 14 33	190° 23′ h m 14 34
	s	s	s	s	s	s	s	s
Mar. 20.6	3.62 + .20	38.96 + .19	25.16 +1.22	23.67 + .59	56.39 + .20	46.41 + .20	25.67 + .87	4.80 − .85
30.6	3.79 .15	39.13 .15	26.26 .98	24.16 .39	56.57 .16	46.59 .16	26.47 .73	4.03 .69
Apr. 9.5	3.90 .10	39.26 .11	27.14 .73	24.45 .20	56.71 .12	46.72 .13	27.12 .58	3.43 .51
19.5	3.98 .07	39.35 .08	27.71 .45	24.56 + .02	56.80 .07	46.84 .10	27.63 .43	3.01 .32
29.5	4.03 .04	39.42 .06	28.03 + .18	24.49 − .17	56.85 + .01	46.91 .07	27.98 .26	2.79 − .12
May 9.5	4.06 + .01	39.46 + .03	28.07 − .10	24.22 − .35	56.83 − .04	46.97 + .04	28.15 + .10	2.76 + .07
19.4	4.04 − .04	39.48 + .01	27.83 .36	23.80 .50	56.78 .07	46.98 + .01	28.17 − .06	2.94 .26
29.4	3.99 .06	39.48 − .02	27.34 .62	23.23 .64	56.69 .11	46.99 − .01	28.03 .22	3.29 .45
June 8.4	3.93 .08	39.44 .05	26.59 .87	22.52 .76	56.56 .15	46.96 .04	27.72 .38	3.85 .64
18.4	3.84 .10	39.39 .07	25.60 1.08	21.71 .85	56.40 .18	46.91 .06	27.26 .53	4.56 .78
28.3	3.73 − .13	39.31 − .09	24.43 −1.26	20.82 − .92	56.21 − .20	46.84 − .09	26.67 − .65	5.41 + .92
July 8.3	3.59 .14	39.21 .11	23.08 1.42	19.87 .98	56.00 .22	46.74 .11	25.96 .76	6.39 1.04
18.3	3.46 .15	39.10 .12	21.59 1.55	18.87 1.02	55.77 .24	46.63 .12	25.16 .85	7.48 1.12
28.2	3.30 − .16	38.98 − .12	19.98 −1.66	17.84 −1.04	55.53 − .24	46.51 − .12	24.27 − .93	8.62 +1.14

APPARENT RIGHT ASCENSIONS AND APPROXIMATE NORTH POLAR DISTANCES, FOR TRANSIT AT WASHINGTON.

Mean Solar Date.	33 Bootis.	47 Cephei, S. P.	γ Scorpii.	δ Bootis.	ρ Octantis.	β Cor. Bor.	γ Camelop., S. P.	δ^1 Apodis.
	45° 5′	348° 57′	114° 49′	56° 15′	174° 4′	60° 29′	340° 58′	168° 24′
	h m 14 34	h m 14 50	h m 14 57	h m 15 10	h m 15 16	h m 15 22	h m 15 37	h m 16 2
	s	s	s	s	s	s	s	s
Mar. 30.6	29.34 + .19	26.79 − .49	13.13 + .20	47.20 + .20	35.58 +1.77	60.24 + .20	56.32 − .40	55.01 +1.09
Apr. 9.6	29.51 .14	26.39 .30	13.33 .18	47.38 .17	37.21 1.48	60.43 .18	55.98 .26	56.04 .97
19.6	29.62 .09	26.20 − .09	13.49 .16	47.53 .14	38.55 1.19	60.60 .15	55.77 .15	56.95 .84
29.5	29.69 .05	26.22 + .12	13.64 .13	47.65 .10	39.59 .89	60.73 .12	55.68 − .03	57.72 .68
May 9.5	29.72 + .01	26.45 .35	13.74 .09	47.73 .07	40.32 .57	60.83 .06	55.72 + .10	58.32 .54
19.5	29.71 − .04	26.92 + .56	13.81 + .06	47.78 + .03	40.72 + .23	60.89 + .05	55.88 + .23	58.79 + .38
29.5	29.64 .09	27.57 .74	13.86 + .03	47.78 − .01	40.77 − .11	60.92 + .01	56.19 .37	59.07 .20
June 8.4	29.54 .12	28.40 .90	13.87 − .01	47.76 .04	40.51 .43	60.90 − .04	56.59 .47	59.19 + .03
18.4	29.41 .15	29.36 1.04	13.84 .04	47.69 .09	39.90 .76	60.85 .06	57.13 .57	59.13 − .16
28.4	29.25 .18	30.48 1.16	13.80 .07	47.59 .11	39.00 1.05	60.78 .09	57.73 .65	58.87 .33
July 8.4	29.06 − .21	31.67 +1.23	13.71 − .10	47.47 − .14	37.79 −1.33	60.67 − .12	58.43 + .73	58.46 − .48
18.3	28.83 .23	32.94 1.28	13.61 .12	47.31 .16	36.35 1.56	60.54 .14	59.18 .77	57.92 .62
28.3	28.60 .24	34.23 1.30	13.48 .14	47.15 .18	34.66 1.75	60.39 .17	59.96 .79	57.21 .76
Aug. 7.3	28.35 .25	35.55 1.30	13.33 .15	46.95 .20	32.86 1.84	60.21 .19	60.76 .81	56.41 .85
17.2	28.11 .24	36.83 1.27	13.18 .16	46.75 .21	30.98 1.89	60.02 .20	61.57 .81	55.51 .92
27.2	27.87 − .23	38.08 +1.23	13.00 − .17	46 54 − .21	29.10 −1.84	59.82 − .20	62.37 + .80	54.58 − .94

Mean Solar Date.	ϕ Herculis.	σ Cor. Bor. (*mean.*)	γ Apodis.	η Urs. Min.	η Ophiuchi.	π Herculis.	θ Ophiuchi.	δ Ara.
	44° 45′	55° 50′	168° 38′	13° 58′	105° 35′	53° 3′	114° 53′	150° 35′
	h m 16 5	h m 16 10	h m 16 15	h m 16 20	h m 17 3	h m 17 10	h m 17 14	h m 17 20
	s	s	s	s	s	s	s	s
Apr. 9.6	5.32 + .24	17.90 + .23	33.92 +1.02	60.41 + .61	39.39 + .28	58.30 + .29	48.66 + .32	31.57 + .53
19.6	5.54 .20	18.11 .19	34.89 .92	60.96 .49	39.66 .25	58.58 .27	48.96 .28	32.08 .49
29.6	5.71 .16	18.28 .16	35.74 .76	61.40 .36	39.89 .23	58.83 .22	49.21 .25	32.55 .45
May 9.6	5.86 .13	18.43 .13	36.40 .60	61.67 .20	40.11 .20	59.02 .19	49.45 .22	32.97 .40
19.5	5.96 .08	18.54 .09	36.94 .45	61.81 + .06	40.28 .17	59.20 .16	49.65 .19	33.34 .34
29.5	6.01 + .03	18.61 + .05	37.30 + .26	61.78 − .11	40.44 + .15	59.33 + .11	49.83 + .16	33.65 + .27
June 8.5	6.01 − .02	18.63 + .01	37.46 + .08	61.60 .25	40.57 .11	59.42 .07	49.97 .13	33.88 .20
18.5	5.97 .07	18.63 − .03	37.45 − .10	61.27 .40	40.66 .08	59.47 + .03	50.09 .10	34.04 .13
28.4	5.87 .12	18.57 .07	37.25 .28	60.80 .53	40.72 + .03	59.48 − .02	50.16 .05	34.14 + .06
July 8.4	5.74 .16	18.49 .11	36.89 .44	60.21 .65	40.72 − .01	59.43 .07	50.19 + .01	34.15 − .02
18.4	5.56 − .20	18.36 − .14	36.37 − .60	59.50 − .75	40.71 − .04	59.35 − .10	50.18 − .04	34.09 − .10
28.3	5.35 .23	18.21 .17	35.69 .74	58.72 .82	40.65 .08	59.23 .15	50.12 .08	33.95 .18
Aug. 7.3	5.11 .25	18.02 .21	34.89 .85	57.85 .89	40.55 .12	59.04 .19	50.03 .12	33.73 .25
17.3	4.86 .27	17.80 .22	33.99 .93	56.94 .93	40.42 .14	58.85 .21	49.89 .15	33.46 .30
27.3	4.57 .28	17.58 .22	33.03 .98	55.99 .96	40.27 .16	58.62 .23	49.74 .17	33.14 .34
Sept. 6.2	4.30 − .28	17.36 − .23	32.04 − .98	55.02 − .96	40.10 − .18	58.38 − .24	49.56 − .19	32.78 − .36
16.2	4.02 .27	17.13 .23	31.07 .94	54.07 .92	39.91 .18	58.13 .25	49.37 .19	32.42 .37
26.2	3.76 .24	16.90 .24	30.17 .86	53.18 .86	39.74 .17	57.88 .25	49.18 .18	32.04 .37
Oct. 6.2	3.55 − .19	16.66 − .24	29.35 − .78	52,35 − .80	39.58 − .15	57.64 − .23	49.00 − .17	31.69 − .34

APPARENT RIGHT ASCENSIONS AND APPROXIMATE NORTH POLAR DISTANCES, FOR TRANSIT AT WASHINGTON.

Mean Solar Date.	Groombr. 944, S.P.	ι Herculis.	θ Herculis.	ο Herculis.	λ Sagittarii.	χ Draconis.	ζ Pavonis.	γ Lyræ.
	355° 8′ h m 17 24	43° 56′ h m 17 36	52° 44′ h m 17 52	61° 15′ h m 18 2	115° 29′ h m 18 20	17° 19′ h m 18 23	161° 32′ h m 18 29	57° 28′ h m 18 54
	s	s	s	s	s	s	s	s
May 19.6	17.54 − .50	10.99 + .19	15.22 + .20	59.26 + .21	44.98 + .24	14.03 + .43	22.37 + .62	34.50 + .24
29.6	17.28 − .04	11.15 .14	15.40 .16	59.45 .18	45.21 .22	14.40 .31	22.96 .56	34.73 .22
June 8.5	17.48 + .43	11.27 .10	15.53 .12	59.61 .13	45.42 .19	14.65 .19	23.48 .46	34.93 .19
18.5	18.15 .89	11.34 + .05	15.63 .08	59.71 .09	45.59 .15	14.78 + .07	23.88 .35	35.10 .14
28.5	19.25 1.32	11.36 − .01	15.68 + .03	59.79 .05	45.72 .12	14.78 − .06	24.17 .23	35.21 .10
July 8.5	20.77 +1.71	11.31 − .07	15.68 − .02	59.81 + .01	45.82 + .07	14.65 − .19	24.33 + .11	35.29 + .06
18.4	22.66 2.04	11.22 .12	15.63 .07	59.80 − .04	45.86 + .02	14.40 .31	24.38 − .02	35.33 + .01
28.4	24.84 2.34	11.08 .17	15.55 .12	59.74 .09	45.86 − .03	14.04 .42	24.29 .15	35.31 − .04
Aug. 7.4	27.33 2.60	10.88 .21	15.40 .16	59.63 .13	45.81 .07	13.57 .52	24.08 .26	35.25 .09
17.4	30.03 2.77	10.66 .25	15.23 .20	59.49 .16	45.72 .11	13.00 .62	23.77 .37	35.14 .14
27.3	32.87 +2.92	10.38 − .28	15.01 − .23	59.31 − .19	45.59 − .15	12.34 − .69	23.34 − .47	34.98 − .17
Sept. 6.3	35.87 3.02	10.10 .29	14.78 .25	59.11 .21	45.43 .17	11.63 .74	22.84 .54	34.80 .20
16.3	38.92 3.05	9.80 .30	14.53 .26	58.90 .22	45.25 .19	10.87 .78	22.26 .60	34.57 .22
26.2	41.96 3.01	9.49 .30	14.27 .25	58.67 .23	45.05 .19	10.08 .79	21.64 .62	34.35 .23
Oct. 6.2	44.92 2.92	9.20 .28	14.02 .24	58.45 .22	44,87 .19	9.29 .79	21.03 .61	34.12 .24
16.2	47.79 +2.81	8.93 − .26	13.78 − .23	58.23 − .21	44.68 − .18	8.50 − .78	20.43 − .59	33.88 − .24

Mean Solar Date.	ι Lyræ.	25 Camelop. S. P.	θ Lyræ.	β Cygni.	β Sagittæ.	δ Cygni.	Groombr. 1374, S.P.	ε Pavonis.
	54° 5′ h m 19 3	352° 38′ h m 19 6	52° 5′ h m 19 12	62° 17′ h m 19 25	72° 48′ h m 19 35	45° 9′ h m 19 41	344° 14′ h m 19 46	163° 13′ h m 19 47
	s	s	s	s	s	s	s	s
May 29.6	8.41 + .24	10.65 − .68	19.20 + .26	60.67 + .23	47.89 + .24	20.04 + .28	3.77 − .40	3.39 + .76
June 8.6	8.63 .20	10.11 .40	19.43 .21	60.89 .21	48.12 .22	20.30 .25	3.44 .26	4.11 .68
18.6	8.80 .15	9.86 − .11	19.61 .16	61.09 .18	48.32 .19	20.53 .20	3.24 .14	4.74 .58
28.6	8.92 .11	9.89 + .17	19.74 .12	61.25 .13	48.50 .15	20.70 .15	3.16 − .01	5.26 .46
July 8.5	9.01 .06	10.20 .45	19.84 .07	61.35 .09	48.62 .11	20.82 .10	3.22 + .13	5.66 .34
18.5	9.04 + .01	10.80 + .74	19.88 + .02	61.43 + .05	48.71 + .07	20.90 + .04	3.41 + .25	5.94 + .20
28.5	9.03 − .04	11.68 .99	19.88 − .04	61.45 − .01	48.75 + .02	20.90 − .02	3.71 .37	6.06 + .05
Aug. 7.4	8.96 .09	12.77 1.20	19.81 .09	61.42 .05	48.75 − .03	20.86 .08	4.15 .48	6.05 − .08
17.4	8.85 .13	14.09 1.41	19.70 .13	61.35 .10	48.70 .07	20.75 .13	4.67 .58	5.89 .22
27.4	8.70 .17	15.59 1.60	19.55 .18	61.23 .14	48.61 .10	20.61 .18	5.31 .69	5.61 .34
Sept. 6.4	8.51 − .21	17.29 +1.77	19.35 − .22	61.08 − .16	48.50 − .14	20.40 − .22	6.05 + .77	5.21 − .46
16.3	8.28 .24	19.12 1.87	19.12 .24	60.91 .20	48.34 .17	20.17 .24	6.85 .84	4.69 .56
26.3	8.04 .24	21.03 1.95	18.88 .25	60.69 .22	48.17 .18	19.92 .27	7.72 .90	4.09 .63
Oct. 6.3	7.80 .25	23.02 2.02	18.63 .26	60.48 .22	47.98 .19	19.64 .29	8.65 .94	3.44 .67
16.3	7.55 .24	25.06 2.01	18.37 .25	60.26 .21	47.79 .19	19.35 .29	9.61 .96	2.76 .68
26.2	7.31 − .22	27.04 +1.98	18.13 − .23	60.06 − .20	47.60 − .18	19.07 − .28	10.57 + .98	2.08 − .66
Nov. 5.2	7.11 − .18	29.01 +1.95	17.91 − .21	59.87 − .18	47.44 − .15	18.79 − .27	11.56 + .99	1.44 − .61

APPARENT RIGHT ASCENSIONS AND APPROXIMATE NORTH POLAR DISTANCES, FOR TRANSIT AT WASHINGTON.

Mean Solar Date.	γ Sagittæ.	c Sagittarii.	θ Aquilæ.	o¹ Cygni.	α Delphini.	β Pavonis.	ψ Capricor.	ε Cygni.
	70° 50′	118° 2′	91° 10′	43° 37′	74° 30′	156° 38′	115° 42′	56° 28′
	h m 19 53	h m 19 55	h m 20 5	h m 20 9	h m 20 34	h m 20 34	h m 20 39	h m 20 41
	s	s	s	s	s	s	s	s
June 18.6	33.91 + .20	28.04 + .25	16.43 + .20	58.26 + .22	12.68 + .24	24.87 + .49	10.08 + .28	29.42 + .27
28.6	34.09 .16	28.28 .21	16.62 .18	58.46 .18	12.90 .20	25.34 .45	10.34 .24	29.66 .21
July 8.5	34.23 .13	28.45 .16	16.80 .15	58.62 .13	13.07 .16	25.76 .37	10.56 .20	29.84 .17
18.5	34.34 .09	28.59 .12	16.92 .11	58.72 .07	13.22 .13	26.08 .27	10.73 .16	29.99 .13
28.5	34.40 + .04	28.68 .07	17.01 .06	58.76 + .02	13.32 .08	26.29 .16	10.87 .11	30.09 .07
Aug. 7.5	34.41 − .01	28.72 + .01	17.04 + .01	58.76 − .03	13.37 + .04	26.41 + .06	10.95 + .06	30.13 + .02
17.4	34.38 .06	28.70 − .04	17.03 − .03	58.69 .09	13.39 − .01	26.41 − .04	10.98 + .01	30.13 − .02
27.4	34.30 .10	28.65 .08	16.99 .07	58.57 .15	13.35 .06	26.33 .14	10.96 − .04	30.09 .07
Sept. 6.4	34.19 .12	28.55 .12	16.90 .11	58.40 .20	13.28 .09	26.12 .25	10.90 .08	30.00 .11
16.4	34.06 .15	28.41 .16	16.78 .13	58.17 .24	13.17 .13	25.83 .33	10.80 .12	29.87 .16
26.3	33.88 − .18	28.24 − .18	16.64 − .15	57.92 − .26	13.03 − .15	25.47 − .40	10.67 − .15	29.69 − .18
Oct. 6.3	33.70 .18	28.06 .19	16.48 .17	57.65 .28	12.87 .17	25.04 .44	10.51 .17	29.51 .20
16.3	33.52 .19	27.87 .19	16.31 .17	57.37 .28	12.70 .18	24.59 .47	10.33 .18	29.29 .21
26.2	33.32 .19	27.68 .18	16.15 .16	57.09 .28	12.52 .17	24.11 .48	10.15 .18	29.09 .21
Nov. 5.2	33.15 .16	27.50 .17	15.98 .15	56.81 .27	12.36 .16	23.63 .46	9.97 .17	28.88 .20
15.2	33.00 − .14	27.35 − .14	15.85 − .12	56.55 − .25	12.20 − .15	23.19 − .43	9.82 − .15	28.68 − .19
25.2	32.88 − .11	27.23 − .11	15.74 − .10	56.31 − .23	12.05 − .14	22.78 − .39	9.67 − .13	28.50 − .17

Mean Solar Date.	τ Cygni.	ζ Capricor.	74 Cygni.	λ¹ Octantis.	ζ Chamæleontis, S.P.	π² Cygni.	16 Pegasi.	π Pegasi.
	52° 27′	112° 55′	50° 7′	173° 16′	189° 35′	41° 14′	64° 38′	57° 24′
	h m 21 10	h m 21 19	h m 21 32	h m 21 32	h m 21 37	h m 21 42	h m 21 47	h m 22 4
	s	s	s	s	s	s	s	s
July 8.6	8.50 + .20	59.60 + .23	16.82 + .23	54.35 +1.34	12.89 − .80	29.82 + .26	45.12 + .23	48.38 + .27
18.6	8.68 .16	59.80 .19	17.02 .18	55.57 1.08	12.17 .64	30.06 .21	45.33 .19	48.62 .21
28.5	8.81 .11	59.97 .15	17.18 .14	56.51 .79	11.62 .44	30.23 .15	45.50 .15	48.80 .17
Aug. 7.5	8.90 .06	60.10 .10	17.30 .09	57.15 .47	11.30 − .21	30.36 .10	45.62 .11	48.95 .12
17.5	8.93 + .01	60.17 + .05	17.35 + .03	57.44 + .14	11.19 .00	30.42 + .03	45.71 .07	49.04 .08
27.5	8.91 − .05	60.19 .00	17.36 − .02	57.42 − .19	11.30 + .24	30.42 − .02	45.75 + .02	49.10 + .03
Sept. 6.4	8.84 .10	60.17 − .04	17.31 .08	57.05 .52	11.68 .48	30.38 .07	45.74 − .03	49.10 − .02
16.4	8.72 .14	60.11 .09	17.21 .12	56.33 .87	12.25 .67	30.28 .13	45.68 .07	49.07 .06
26.4	8.57 .17	60.00 .12	17.08 .15	55.32 1.14	13.01 .88	30.12 .18	45.60 .10	48.98 .10
Oct. 6.3	8.39 .20	59.88 .14	16.91 .18	54.05 1.38	14.01 1.07	29.91 .21	45.48 .13	48.87 .13
16.3	8.18 − .21	59.73 − .16	16.71 − .20	52.55 −1.57	15.16 +1.22	29.69 − .23	45.34 − .15	48.73 − .15
26.3	7.97 .21	59.56 .17	16.50 .21	50.92 1.69	16.45 1.32	29.45 .25	45.18 .16	48.57 .17
Nov. 5.3	7.76 .21	59.39 .17	16.29 .22	49.17 1.76	17.80 1.38	29.19 .26	45.02 .17	48.39 .18
15.2	7.55 .21	59.23 .16	16.06 .21	47.41 1.75	19.21 1.40	28.92 .27	44.84 .16	48.21 .18
25.2	7.34 .20	59.09 .14	15.86 .20	45.68 1.68	20.60 1.36	28.66 .26	44.69 .15	48.03 .17
Dec. 5.2	7.16 − .17	58.96 − .12	15.67 − .18	44.06 −1.53	21.93 +1.30	28.41 − .24	44.54 − .14	47.87 − .17

APPARENT RIGHT ASCENSIONS AND APPROXIMATE NORTH POLAR DISTANCES, FOR TRANSIT AT WASHINGTON.

Mean Solar Date.	υ Octantis.	γ Aquarii.	σ Aquarii.	α Lacertæ.	β Octantis.	10 Lacertæ.	λ Pegasi.	Groombr. 1706, S.P.
	176° 34′	91° 59′	101° 17′	40° 19′	172° 0′	51° 34′	67° 3′	348° 24′
	h m 22 8	h m 22 15	h m 22 24	h m 22 26	h m 22 33	h m 22 34	h m 22 40	h m 22 50
	s	s	s	s	s	s	s	s
July 8.6	59.40 +2.86	37.11 + .25	27.48 + .25	29.61 + .32	63.21 +1.35	1.58 + .30	54.25 + .28	27.31 − .68
18.6	62.05 2.42	37.34 .21	27.72 .23	29.91 .28	64.49 1.21	1.85 .25	54.51 .25	26.69 .56
28.6	64.23 1.92	37.53 .17	27.94 .19	30.16 .22	65.62 1.01	2.08 .21	54.74 .20	26.20 .43
Aug. 7.5	65.87 1.34	37.68 .14	28.10 .14	30.34 .16	66.50 .76	2.26 .16	54.91 .15	25.84 .30
17.5	66.90 .72	37.80 .10	28.22 .11	30.47 .10	67.13 .52	2.40 .11	55.04 .12	25.60 .16
27.5	67.30 + .07	37.87 + .05	28.31 + .07	30.54 + .05	67.49 + .22	2.48 + .06	55.14 + .08	25.52 − .01
Sept. 6.5	67.04 − .59	37.90 + .01	28.35 + .02	30.56 .00	67.57 − .07	2.51 + .01	55.20 + .03	25.58 + .15
16.4	66.11 1.23	37.89 − .03	28.35 − .02	30.53 − .06	67.35 .36	2.50 − .03	55.20 − .02	25.83 .32
26.4	64.59 1.82	37.84 .06	28.31 .06	30.44 .11	66.84 .63	2.45 .08	55.17 .05	26.22 .47
Oct. 6.4	62.46 2.40	37.77 .09	28.24 .08	30.31 .16	66.10 .87	2.35 .12	55.11 .08	26.77 .61
16.4	59.81 −2.85	37.67 − .11	28.15 − .11	30.13 − .20	65.09 −1.10	2.22 − .14	55.01 − .11	27.44 + .75
26.3	56.78 3.19	37.56 .13	28.03 .13	29.92 .22	63.90 1.29	2.08 .16	54.90 .12	28.28 .90
Nov. 5.3	53.44 3.44	37.42 .14	27.90 .13	29.69 .24	62.56 1.40	1.91 .19	54.77 .14	29.23 1.00
15.3	49.93 3.54	37.28 .13	27.77 .14	29 44 .25	61.11 1.48	1.71 .19	54.63 .15	30.28 1.10
25.2	46.38 3.52	37.16 .12	27.63 .14	29.19 .25	59.61 1.48	1.53 .19	54.48 .15	31.44 1.18
Dec. 5.2	42.93 −3.35	37.03 − .11	27.50 − .13	28.94 − .24	58.15 −1.44	1.34 − .19	54.33 − .14	32.63 +1.21
15.2	39.71 −3.08	36.93 − .09	27.38 − .11	28.70 − .23	56.74 −1.38	1.15 − .18	54.20 − .12	33.85 +1.22

Mean Solar Date.	o Androm.	ϕ Aquarii.	τ Pegasi.	λ Androm.	i^1 Aquarii.	δ Sculptoris.	γ^1 Octantis.	33 Piscium.
	48° 18′	96° 41′	66° 54′	44° 11′	108° 56′	118° 47′	172° 40′	96° 22′
	h m 22 56	h m 23 8	h m 23 14	h m 23 31	h m 23 38	h m 23 42	h m 23 45	h m 23 59
	s	s	s	s	s	s	s	s
July 28.6	33.69 + .24	16.38 + .22	51.64 + .23	51.69 + .30	8.38 + .28	50.23 + .27	14.57 +1.37	21.17 + .26
Aug. 7.6	33.91 .19	16.58 .18	51.85 .19	51.96 .25	8.63 .22	50.48 .23	15.86 1.21	21.41 .23
17.6	34.07 .14	16.74 .15	52.02 .15	52.18 .19	8.82 .17	50.69 .19	16.96 .98	21.62 .19
27.5	34.19 .10	16.87 .11	52.14 .11	52.34 .14	8.97 .14	50.85 .15	17.80 .70	21.78 .15
Sept. 6.5	34.26 + .04	16.95 .06	52.23 .07	52.46 .09	9.09 .10	50.98 .11	18.36 .40	21.91 .11
16.5	34.26 − .01	16.99 + .02	52.27 + .03	52.52 + .04	9.17 + .06	51.07 + .06	18.60 + .11	22.00 + .08
26.4	34.24 .05	16.99 − .01	52.29 − .01	52.54 .00	9.20 + .02	51.10 + .02	18.57 − .20	22.06 + .04
Oct. 6.4	34.17 .09	16.97 .04	52.25 .04	52.52 − .05	9.20 − .02	51.10 − .03	18.19 .52	22.07 .00
16.4	34.06 .12	16.91 .08	52.20 .07	52.45 .09	9.16 .06	51.05 .07	17.53 .80	22.06 − .03
26.4	33.93 .15	16.82 .10	52.11 .10	52.35 .12	9.09 .09	50.97 .19	16.58 1.07	22.02 .06
Nov. 5.3	33.77 − .17	16.71 − .11	52.00 − .12	52.21 − .15	8.99 − .11	50.86 − .12	15.40 −1.29	21.95 − .08
15.3	33.59 .19	16.60 .12	51.88 .13	52.05 .18	8.88 .12	50.74 .13	13.99 1.47	21.87 .09
25.3	33.39 .20	16.48 .13	51.75 .14	51.86 .20	8.75 .13	50.60 .14	12.47 1.57	21.77 .10
Dec. 5.3	33.19 .20	16.35 .12	51.61 .14	51.65 .21	8.62 .13	50.46 .15	10.85 1.64	21.67 .11
15.2	33.00 .19	16.24 .11	51.48 .14	51.45 .21	8.50 .13	50.31 .15	9.19 1.65	21.55 .12
25.2	32.82 − .19	16.13 − .10	51.34 − .13	51.23 − .21	8.37 − .12	50.16 − .14	7.55 −1.60	21.43 − .12
35.2	32.63 − .18	16.04 − .08	51.21 − .12	51.02 − .20	8.25 − .11	50.02 − .13	6.00 −1.48	21.32 − .11

APPARENT RIGHT ASCENSIONS AND APPROXIMATE NORTH POLAR DISTANCES, FOR TRANSIT AT WASHINGTON.

Mean Solar Date.	β Cassiop.	22 Androm.	σ Androm.	ι Ceti.	6 Urs. Min., S. P.	44 Piscium.	π Androm.	ο Cassiop.
	31° 30′ h m 0 2	44° 35′ h m 0 4	53° 52′ h m 0 12	99° 28′ h m 0 13	358° 21′ h m 0 13	88° 43′ h m 0 19	56° 56′ h m 0 30	42° 21′ h m 0 38
	s	s	s	s	s	s	s	s
(Dec. 30.3)	57.60 − .30	15.59 − .20	14.04 − .16	28.47 − .11	68.03 +7.45	25.04 − .11	39.11 − .14	13.91 − .19
Jan. 9.2	57.31 .29	15.40 .19	13.87 .16	28.36 .11	75.46 7.38	24.94 .11	38.97 .15	13.71 .21
19.2	57.03 .29	15.21 .19	13.71 .16	28.25 .12	82.68 7.09	24.82 .13	38.82 .17	13.49 .23
29.2	56.73 − .29	15.02 − .19	13.55 − .16	28.14 − .12	89.39 +6.37	24.68 − .14	38.65 − .18	13.26 − .24
. .	. . . .	. . . .	. . . .	. . . .	. . . .	. . . .	. . . .	. . . .
Sept. 5.5	62.24 + .22	19.49 + .22	17.64 + .15	31.05 + .17	23.45 −2.37	28.14 + .18	42.45 + .21	17.59 + .25
15.5	62.39 .15	19.62 .15	17.77 .10	31.79 .13	21.58 1.35	28.32 .13	42.63 .16	17.80 .19
25.5	62.48 + .07	19.72 + .06	17.84 .05	31.88 .06	20.75 − .28	28.42 .06	42.76 .09	17.96 .11
Oct. 5.5	62.49 − .02	19.73 − .01	17.87 + .01	31.90 + .01	21.03 + .83	28.44 + .01	42.82 + .03	18.03 + .04
15.4	62.44 .08	19.70 .06	17.87 − .09	31.89 − .09	22.41 1.91	28.44 − .01	42.82 − .01	18.04 − .01
25.4	62.33 − .12	19.64 − .08	17.84 − .05	31.87 − .04	24.85 +3.02	28.42 − .03	42.81 − .03	18.03 − .03
Nov. 4.4	62.21 .17	19.55 .12	17.77 .08	31.83 .07	28.45 4.11	28.39 .06	42.79 .06	17.98 .07
14.4	62.01 .23	19.42 .16	17.68 .12	31.74 .10	33.03 5.05	28.32 .09	42.71 .10	17.89 .12
24.3	61.75 .27	19.24 .18	17.55 .13	31.64 .10	38.50 5.89	28.22 .09	42.59 .12	17.75 .16
Dec. 4.3	61.49 .28	19.07 .18	17.42 .14	31.53 .11	44.79 6.62	28.13 .09	42.48 .12	17.60 .16
14.3	61.22 − .30	18.90 − .20	17.26 − .16	31.43 − .12	51.69 +7.14	28.03 − .12	42.36 − .15	17.43 − .20
24.2	60.89 .31	18.67 .21	17.09 .16	31.30 .13	59.01 7.45	27.90 .14	42.20 .17	17.21 .22
34.2	60.59 − .30	18.47 − .20	16.93 − .16	31.15 − .14	66.50 +7.50	27.75 − .15	42.02 − .18	16.98 − .23

Mean Solar Date.	δ Piscium.	γ Cassiop.	μ Androm.	43 Cephei.	f Piscium.	κ Tucanæ.	κ Octantis, S. P.	υ Androm.
	83° 3′ h m 0 42	29° 55′ h m 0 49	52° 8′ h m 0 50	4° 22′ h m 0 52	87° 0′ h m 1 11	159° 30′ h m 1 11	184° 49′ h m 1 22	49° 11′ h m 1 29
	s	s	s	s	s	s	s	s
(Dec. 30.3)	37.66 − .11	41.14 − .28	17.02 − .16	66.77 −2.62	46.90 − .10	48.07 − .56	18.05 +2.95	57.72 − .15
Jan. 9.2	37.56 .12	40.83 .32	16.85 .17	64.17 2.62	46.79 .12	47.50 .57	20.96 2.91	57.56 .17
19.2	37.43 .13	40.49 .35	16.68 .19	61.54 2.70	46.66 .14	46.92 .55	23.86 2.85	57.37 .21
29.2	37.29 − .14	40.13 − .36	16.47 − .20	58.79 −2.79	46.51 − .15	46.38 − .50	26.65 +2.70	57.15 − .25
. .	. . . .	. . . .	. . . .	. . . .	. . . .	. . . .	. . . .	. . . .
Sept. 25.5	40.93 + .09	45.82 + .14	20.68 + .09	86.63 + .87	49.95 + .09	52.18 + .14	13.28 − .68	61.21 + .14
Oct. 5.5	40.99 .04	45.91 .07	20.76 .05	87.19 + .54	50.03 .05	52.27 + .06	12.83 − .20	61.33 .10
15.5	41.01 + .02	45.98 + .01	20.79 + .02	87.23 .00	50.06 .04	52.30 − .02	12.88 + .30	61.41 .07
25.4	41.02 .00	45.96 − .04	20.80 .00	86.87 − .54	50.12 + .03	52.25 .14	13.43 .79	61.49 + .05
Nov. 4.4	41.00 − .04	45.91 .09	20.79 − .04	86.18 .90	50.12 − .02	52.06 .26	14.46 1.28	61.53 .00
14.4	40.95 − .07	45.80 − .16	20.73 − .08	85.05 −1.40	50.09 − .05	51.74 − .34	16.00 +1.74	61.50 − .05
24.4	40.87 .08	45.58 .21	20.62 .10	83.36 1.90	50.04 .06	51.38 .40	17.93 2.12	61.44 .08
Dec. 4.3	40.79 .08	45.36 .23	20.52 .12	81.37 2.08	49.98 .07	50.97 .47	20.25 2.46	61.36 .09
14.3	40.70 .11	45.13 .28	20.40 .15	79.22 2.30	49.90 .10	50.46 .52	22.84 2.70	61.27 .12
24.3	40.57 .13	44.81 .31	20.23 .17	76.72 2.50	49.78 .12	49.92 .52	25.62 2.83	61.11 .15
34.2	40.43 − .14	44.50 − .32	20.05 − .18	74.20 −2.60	49.67 − .11	49.43 − .49	28.49 +2.88	60.96 − .16

APPARENT RIGHT ASCENSIONS AND APPROXIMATE NORTH POLAR DISTANCES, FOR TRANSIT AT WASHINGTON.

Mean Solar Date.	π Piscium.	ν Piscium.	ζ Ceti.	γ Androm.	β Trianguli.	4 Urs. Min., S. P.	γ Trianguli.	67 Ceti.
	78° 27′	85° 6′	100° 55′	48° 14′	55° 34′	348° 6′	56° 42′	96° 58′
	h m 1 30	h m 1 35	h m 1 45	h m 1 56	h m 2 2	h m 2 9	h m 2 10	h m 2 11
	s	s	s	s	s /	s	s	s
(Dec. 30.3)	55.08 − .10	21.81 − .10	42.25 − .11	45.20 − .15	36.87 − .12	14.77 +1.00	23.50 − .11	10.15 − .09
Jan. 9.3	54.97 .12	21.70 .12	42.13 .13	45.04 .17	36.74 .15	15.80 1.06	23.38 .14	10.05 .12
19.2	54.83 .14	21.57 .14	41.99 .15	44.85 .20	36.56 .18	16.89 1.11	23.22 .16	9.91 .15
29.2	54.69 − .15	21.43 − .16	41.84 − .17	44.62 − .22	36.38 − .20	18.02 +1.11	23.02 − .22	9.76 − .17
. .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Sept. 25.6	58.06 + .11	24.70 + .11	44.96 + .11	48.51 + .18	39.98 + .18	11.83 − .60	26.51 + .19	12.67 + .14
Oct. 5.6	58.16 .08	24.80 .08	45.07 .09	48.68 .14	40.15 .14	11.31 .44	26.69 .15	12.81 .11
15.5	58.23 .06	24.87 .07	45.14 .07	48.80 .11	40.28 .11	10.95 .28	26.82 .12	12.91 .10
25.5	58.30 + .04	24.94 .04	45.22 .05	48.91 .09	40.39 .09	10.76 − .11	26.94 .10	13.01 .08
Nov. 4.5	58.33 .00	24.98 + .01	45.25 + .01	48.99 + .04	40.46 + .05	10.73 + .07	27.02 .06	13.06 + .04
14.4	58.31 − .03	24.96 − .03	45.24 − .03	49.01 − .01	40.48 .00	10.90 + .27	27.07 + .01	13.09 .00
24.4	58.26 .05	24.92 .04	45.20 .05	48.97 .05	40.45 − .02	11.27 .45	27.05 − .02	13.07 − .02
Dec. 4.4	58.22 .05	24.88 .05	45.16 .06	48.93 .06	40.43 .04	11.80 .61	27.03 .04	13.05 .04
14.4	58.17 .09	24.83 .09	45.10 .09	48.86 .11	40.38 .08	12.50 .78	27.00 .08	13.02 .08
24.3	58.05 .12	24.71 .12	44.98 .11	48.72 .14	40.27 .13	13.35 .92	26.89 .12	12.91 .11
34.3	57.92 − .13	24.58 − .13	44.86 − .12	48.57 − .15	40.12 − .15	14.34 +1.06	26.74 − .15	12.80 − .12

Mean Solar Date.	δ Hydri.	δ Ceti.	μ Hydri.	θ Persei.	σ Arietis.	47 Cephei.	ε Arietis.	β Persei, (*Algol.*)
	159° 12′	90° 11′	169° 37′	41° 16′	75° 24′	11° 3′	69° 8′	49° 30′
	h m 2 19	h m 2 33	h m 2 34	h m 2 36	h m 2 45	h m 2 50	h m 2 52	h m 3 0
	s	s	s	s	s	s	s	s
(Dec. 30.3)	41.27 − .54	30.65 − .08	12.16 −1.18	15.30 − .15	3.75 − .07	42.45 − .66	33.24 − .07	35.89 − .10
Jan. 9.3	40.71 .58	30.56 .11	10.93 1.25	15.14 .19	3.67 .11	41.81 .81	33.16 .11	35.76 .15
19.3	40.11 .59	30.43 .15	9.67 1.26	14.93 .23	3.54 .15	40.92 .97	33.02 .15	35.60 .20
29.3	39.53 .58	30.25 .18	8.43 1.23	14.68 .26	3.37 .15	39.85 1.04	32.86 .16	35.38 .21
Feb. 8.2	38.96 − .56	30.05 − .21	7.23 −1.17	14.42 − .24	3.23 − .14	38.83 −1.00	32.70 − .15	35.19 − .20
. .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Oct. 25.5	43.81 + .02	33.44 + .10	14.19 + .07	19.14 + .17	6.71 + .14	50.92 + .52	36.24 + .14	39.27 + .19
Nov. 4.5	43.78 − .09	33.54 .06	14.10 − .21	19.29 .11	6.81 .08	51.36 .30	36.36 .10	39.44 13
14.5	43.65 .19	33.59 + .02	13.79 .38	19.37 + .04	6.86 .04	51.57 + .07	36.44 .05	39.54 .08
24.4	43.43 .28	33.59 − .00	13.31 .54	19.38 .00	6.89 + .02	51.53 − .11	36.47 .03	39.59 .04
Dec. 4.4	43.13 − .38	33.59 − .01	12.62 − .79	19.37 − .03	6.90 − .00	51.37 − .25	36.50 + .01	39.63 + .01
14.4	42.71 .45	33.56 .04	11.90 1.00	19.34 .09	6.89 .04	51.05 .45	36.49 − .04	39.62 − .04
24.4	42.23 .51	33.49 .07	10.91 1.07	19.21 .13	6.83 .07	50.51 .61	36.43 .07	39.55 .10
34.3	41.71 − .57	33.40 − .09	9.77 −1.16	19.06 − .15	6.76 − .09	49.83 − .74	36.36 − .08	39.44 − .12

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Mean Solar Date.	ρ Octantis, S. P.	ι Hydri.	f Tauri.	γ Camelop.	γ Hydri.	ε Persei.	A¹ Tauri.	c Persei.
	185° 56′	167° 49′	77° 28′	19° 2′	164° 36′	50° 20′	68° 14′	42° 36′
	h m 3 16	h m 3 18	h m 3 24	h m 3 38	h m 3 49	h m 3 50	h m 3 57	h m 4 0
	s	s	s	s	s	s	s	s
(Dec. 30.4)	27.87 +2.17	56.38 − .91	26.70 − .04	6.86 − .24	6.46 − .64	2.83 − .06	48.92 − .02	13.19 − .06
Jan. 9.3	30.11 2.30	55.43 .99	26.65 .09	6.58 .37	5.77 .73	2.75 .10	48.88 .07	13.10 .12
19.3	32.48 2.44	54.39 1.05	26.54 .15	6.15 .50	5.03 .79	2.63 .17	48.78 .13	12.95 .19
29.3	34.97 2.50	53.34 1.07	26.38 .15	5.59 .55	4.22 .84	2.43 .19	48.63 .15	12.74 .22
Feb. 8.2	37.45 2.49	52.25 1.12	26.25 .15	5.05 .55	3.32 .88	2.25 .19	48.48 .15	12.53 .22
18.2	39.95 +2.45	51.11 −1.17	26.09 − .15	4.50 − .55	2.46 − .90	2.05 − .23	48.34 − .18	12.31 − .26
28.2	42.34 +2.32	49.91 −1.21	25.94 − .15	3.95 − .55	1.58 − .86	1.80 − .28	48.13 − .24	12.01 − .33
. .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Nov. 4.5	33.93 + .06	56.86 + .08	29.55 + .12	12.56 + .35	6.52 + .16	6.13 + .18	51.77 + .16	16.71 + .23
14.5	34.21 .48	56.85 − .09	29.65 .08	12.85 .21	6.64 + .03	6.30 .13	51.92 .12	16.90 .17
24.5	34.89 + .89	56.68 − .27	29.71 + .06	13.01 + .12	6.62 − .12	6.41 + .10	52.03 + .10	17.05 + .12
Dec. 4.4	35.99 1.29	56.31 .48	29.78 + .04	13.11 + .04	6.44 .27	6.51 .08	52.12 .07	17.17 .09
14.4	37.47 1.64	55.74 .65	29.80 − .01	13.11 − .10	6.12 .42	6.58 + .01	52.20 + .02	17.25 + .02
24.4	39.26 1.93	55.02 .79	29.77 .06	12.92 .22	5.64 .52	6.55 − .04	52.19 − .03	17.23 − .03
34.4	41.32 +2.18	54.15 − .90	29.68 − .10	12.66 − .31	5.08 − .60	6.49 − .07	52.14 − .06	17.13 − .07

Mean Solar Date.	o¹ Eridani.	η Urs. Min., S. P.	m Persei.	δ Mensæ.	τ Tauri.	i Tauri.	ζ Aurigæ.	β Eridani.
	97° 9′	346° 1′	47° 11′	170° 29′	67° 16′	71° 22′	49° 6′	95° 14′
	h m 4 6	h m 4 20	h m 4 25	h m 4 25	h m 4 35	h m 4 44	h m 4 54	h m 5 2
	s	s	s	s	s	s	s	s
(Dec. 30.4)	11.10 − .02	50.29 + .45	13.94 − .02	60.10 − .95	15.69 + .01	34.06 + .03	20.90 + .03	7.91 + .01
Jan. 9.3	11.06 .08	50.82 .61	13.89 .07	59.08 1.11	15.68 − .05	34.05 − .04	20.89 − .04	7.90 − .03
19.3	10.95 .13	51.51 .74	13.78 .15	57.90 1.23	15.61 .11	33.99 .10	20.82 .12	7.85 .09
29.3	10.81 .14	52.31 .84	13.60 .19	56.64 1.34	15.47 .14	33.87 .13	20.67 .16	7.73 .12
Feb. 8.3	10.68 .15	53.18 .91	13.42 .19	55.23 1.45	15.34 .14	33.74 .13	20.52 .17	7.61 .13
18.2	10.53 − .18	54.12 + .95	13.22 − .24	53.72 −1.50	15.20 − .18	33.61 − .18	20.33 − .22	7.48 − .17
28.2	10.35 − .23	55.07 + .94	12.96 − .31	52.24 −1.44	14.99 − .24	33.40 − .20	20.08 − .26	7.28 − .19
. .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Nov. 4.5	13.43 + .14	48.40 − .46	17.16 + .25	57.14 + .45	18.37 + .20	36.56 + .21	23.88 + .23	9.92 + .19
14.5	13.56 .11	48.02 .31	17.37 .19	57.49 + .24	18.55 .16	36.76 .20	24.11 .23	10.11 .18
24.5	13.65 + .09	47.78 − .15	17.54 + .15	57.62 − .01	18.71 + .14	36.95 + .16	24.33 + .21	10.28 + .15
Dec. 4.5	13.74 .06	47.72 + .03	17.09 .12	57.44 .29	18.84 .12	37.10 .12	24.52 .16	10.42 .12
14.4	13.80 + .01	47.84 .21	17.81 + .05	57.03 .53	18.95 .06	37.21 .07	24.66 .10	10.53 .07
24.4	13.77 − .03	48.14 .38	17.81 − .02	56.40 .70	18.97 + .01	37.25 + .02	24.72 + .05	10.57 + .02
34.4	13.73 − .05	48.60 + .53	17.75 − .08	55.46 − .84	18.96 − .02	37.25 − .01	24.74 .00	10.57 − .01

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Mean Solar Date.	τ Orionis.	Groombr. 944.	χ Aurigæ.	κ Orionis.	ν Aurigæ.	δ Doradus.	β Aurigæ.	θ Aurigæ.
	96° 58′	4° 52′	57° 54′	99° 43′	50° 53′	155° 47′	45° 4′	52° 48′
	h m 5 11	h m 5 24	h m 5 25	h m 5 42	h m 5 43	h m 5 44	h m 5 50	h m 5 51
	s	s	s	s	s	s	s	s
(Dec. 30.4)	57.56 + .02	58.89 − .17	9.45 + .06	14.52 + .05	25.69 + .08	37.22 − .14	59.87 + .11	47.38 + .10
Jan. 9.4	57.56 − .03	58.51 .67	9.49 .00	14.55 − .01	25.74 + .01	37.04 .94	59.94 + .02	47.45 + .02
19.4	57.52 .09	57.54 1.24	9.46 − .07	14.52 .07	25.72 − .07	36.77 .33	59.92 − .07	47.44 − .04
29.4	57.41 .12	56.01 1.62	9.35 .11	14.43 .10	25.61 .11	36.41 .41	59.81 .12	47.35 .10
Feb. 8.3	57.29 .13	54.28 1.87	9.24 .13	14.32 .12	25.50 .13	35.97 .47	59.69 .15	47.25 .12
18.3	57.16 − .17	52.28 −2.22	9.09 − .18	14.20 − .16	25.35 − .19	35.48 − .52	59.53 − .22	47.11 − .19
28.3	56.96 .20	49.81 2.45	8.87 .23	14.01 .19	25.11 .24	34.95 .55	59.28 .26	46.89 .23
Mar. 10.3	56.77 .18	47.35 2.40	8.66 .20	13.82 .18	24.88 .22	34.38 .57	59.02 .25	46.66 .21
20.2	56.60 − .16	44.99 −2.26	8.47 − .17	13.64 − .17	24.67 − .19	33.81 − .57	58.78 − .25	46.46 − .22
. .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Nov. 24.5	59.87 + .17	73.56 +1.60	12.52 + .22	16.67 + .19	28.84 + .26	37.10 + .20	63.12 + .38	50.40 + .35
Dec. 4.5	60.03 .13	74.95 1.16	12.72 .18	16.86 .15	29.09 .22	37.28 .13	63.45 .28	50.71 .26
14.5	60.14 + .08	75.91 + .58	12.90 .12	17.00 .10	29.30 .15	37.37 + .03	63.69 .17	50.93 .16
24.5	60.19 .00	76.14 − .01	12.98 + .05	17.07 + .05	29.41 .09	37.36 − .07	63.81 .10	51.05 .10
34.4	60.16 − .07	75.88 − .55	12.99 − .04	17.09 − .01	29.47 + .03	37.24 − .17	63.89 + .05	51.13 + .04

Mean Solar Date.	η Geminor.	ψ¹ Aurigæ.	ν Geminor.	χ Draconis, S.P.	ε Geminor.	ψ⁸ Aurigæ.	θ Geminor.	ζ Mensæ.
	67° 28′	40° 39′	69° 43′	342° 41′	64° 45′	46° 18′	55° 54′	170° 41′
	h m 6 7	h m 6 15	h m 6 22	h m 6 23	h m 6 36	h m 6 38	h m 6 45	h m 6 49
	s	s	s	s	s	s	s	s
(Dec. 30.5)	51.36 + .10	56.51 + .14	3.32 + .11	5.16 + .02	46.44 + .12	21.23 + .16	7.27 + .16	53.45 − .12
Jan. 9.5	51.44 + .04	56.61 + .05	3.41 + .05	5.25 .16	46.55 + .07	21.36 + .08	7.40 + .08	53.18 .38
19.4	51.44 − .03	56.61 − .05	3.44 − .01	5.47 .30	46.59 .00	21.40 − .01	7.45 .00	52.69 .61
29.4	51.39 .07	56.51 .10	3.40 .06	5.86 .44	46.55 − .05	21.36 .06	7.42 − .04	51.98 .86
Feb. 8.4	51.31 .09	56.42 .13	3.33 .08	6.35 .53	46.51 .07	21.29 .10	7.38 .07	50.99 1.06
18.4	51.20 − .15	56.26 − .22	3.23 − .14	6.92 + .62	46.42 − .14	21.17 − .18	7.28 − .15	49.83 −1.20
28.3	51.02 .19	56.00 .27	3.06 .18	7.60 .71	46.25 .16	20.95 .21	7.10 .10	48.60 1.32
Mar. 10.3	50.83 .18	55.73 .26	2.88 .17	8.34 .75	46.07 .17	20.72 .22	6.91 .19	47.20 1.45
20.3	50.66 .18	55.43 .27	2.73 .18	9.10 .77	45.90 .19	20.50 .23	6.73 .21	45.68 1.50
30.3	50.47 .19	55.19 .31	2.52 .20	9.87 .77	45.69 .21	20.25 .26	6.50 .23	44.19 1.49
Apr. 9.2	50.27 − .20	54.87 − .33	2.31 − .21	10.63 + .75	45.47 − .23	19.98 − .28	6.28 − .22	42.70 −1.48
. .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Dec. 4.6	54.26 + .25	60.17 + .33	6.13 + .26	4.66 − .33	49.27 + .28	24.57 + .33	10.32 + .29	48.50 + .53
14.5	54.46 .16	60.45 .21	6.35 .17	4.38 .21	49.59 .19	24.86 .23	10.59 .20	48.99 .32
24.5	54.58 .09	60.62 .12	6.49 .09	4.24 − .07	49.73 .11	25.05 .16	10.77 .15	49.20 + .13
34.5	54.65 + .04	60.70 + .02	6.57 + .04	4.25 + .08	49.81 + .06	25.18 + .09	10.90 + .09	49.22 − .10

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Mean Solar Date.	ζ Geminor.	63 Aurigæ.	25 Camelop.	γ^2 Volantis.	β Can. Min.	26 Lyncis.	Groombr. 1374.	ω^1 Cancri.
	69° 16′	50° 29′	7° 22′	160° 19′	81° 29′	42° 8′	15° 46′	64° 17′
	h m 6 57	h m 7 3	h m 7 6	h m 7 9	h m 7 20	h m 7 46	h m 7 46	h m 7 53
	s	s	s	s	s	s	s	s
(Dec. 30.5)	12.52 + .16	39.15 + .18	36.79 + .73	48.55 + .05	50.52 + .16	14.25 + .27	16.00 + .51	53.37 + .20
Jan. 9.5	12.63 .08	39.31 .11	37.31 + .30	48.55 − .07	50.66 .10	14.48 .17	16.41 .31	53.57 .15
19.5	12.70 + .02	39.38 + .02	37.39 − .11	48.42 .19	50.74 + .04	14.61 .08	16.60 + .10	53.68 .08
29.5	12.70 − .03	39.36 − .03	37.09 .40	48.19 .32	50.74 .00	14.65 + .02	16.62 − .03	53.73 + .03
Feb. 8.4	12.67 .05	39.34 .06	36.59 .67	47.80 .44	50.73 − .03	14.66 − .03	16.57 .16	53.75 .00
18.4	12.59 − .12	39.24 − .14	35.77 −1.04	47.34 − .51	50.68 − .10	14.61 − .13	16.34 − .37	53.73 − .08
28.4	12.46 .16	39.06 .19	34.52 1.29	46.80 .59	50.55 .14	14.44 .19	15.86 .51	53.61 .13
Mar. 10.3	12.31 .16	38.87 .20	33.17 1.38	46.18 .64	50.40 .14	14.25 .20	15.34 .56	53.48 .14
20.3	12.14 .18	38.67 .22	31.75 1.51	45.52 .67	50.27 .16	14.04 .24	14.76 .65	53.35 .16
30.3	11.95 .20	38.43 .24	30.12 1.63	44.85 .68	50.09 .19	13.78 .27	14.05 .74	53.16 .20
Apr. 9.3	11.76 − .20	38.19 − .25	28.40 −1.65	44.18 − .69	49.91 − .19	13.50 − .27	13.31 − .77	52.96 − .20
19.2	11.56 − .19	37.94 − .25	26.84 −1.60	43.49 − .69	49.72 − .18	13.24 − .24	12.55 − .75	52.77 − .17
. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Dec. 4.6	15.24 + .21	42.26 + .31	45.60 +1.55	47.61 + .38	52.95 + .29	17.35 + .38	20.68 + .81	55.98 + .31
14.6	15.45 .20	42.53 .24	46.93 1.13	47.94 .26	53.20 .22	17.70 .32	21.44 .67	56.28 .26
24.6	15.64 .18	42.76 .19	47.84 .79	48.16 + .13	53.38 .17	18.02 .29	22.04 .55	56.51 .22
34.5	15.79 + .13	42.92 + .14	48.47 + .47	48.23 .00	53.53 + .13	18.29 + .24	22.53 + .44	56.71 + .18

Mean Solar Date.	ζ^1 Cancri.	β Cancri.	30 Monocerotis.	θ Chamæleontis.	σ Hydræ.	γ Cancri.	σ^3 Cancri, (*mean*).	θ Hydri.
	72° 0′	80° 27′	93° 32′	167° 6′	88° 15′	68° 7′	58° 59′	87° 12′
	h m 8 5	h m 8 10	h m 9 19	h m 8 24	h m 8 32	h m 8 36	h m 8 47	h m 9 8
	s	s	s	s	s	s	s	s
(Dec. 30.6)	32.23 + .21	12.26 + .21	50.86 + .21	13.69 + .35	40.57 + .22	32.95 + .24	8.39 + .27	18.50 + .26
Jan. 9.5	32.43 .15	12.45 .15	51.05 .15	13.97 + .20	40.77 .17	33.17 .19	8.64 .21	18.74 .20
19.5	32.54 .08	12.57 .08	51.17 .09	14.08 .00	40.91 .10	33.33 .12	8.82 .14	18.91 .14
29.5	32.60 .04	12.63 .04	51.23 .04	13.98 − .20	40.98 .06	33.41 .08	8.93 .10	19.02 .10
Feb. 8.5	32.64 + .01	12.66 + .01	51.26 + .01	13.69 .36	41.05 + .03	33.49 + .04	9.02 + .05	19.11 + .07
18.4	32.63 − .06	12.65 − .06	51.25 − .05	13.26 − .56	41.05 − .04	33.50 − .03	9.04 − .03	19.15 − .01
28.4	32.52 .11	12.55 .11	51.17 .10	12.69 .65	40.98 .09	33.41 .09	8.97 .08	19.12 .06
Mar. 10.4	32.41 .12	12.44 .12	51.06 .11	11.94 .80	40.88 .10	33.32 .10	8.88 .10	19.05 .07
20.4	32.28 .15	12.32 .14	50.94 .14	11.10 .87	40.78 .13	33.21 .14	8.77 .14	18.97 .10
30.3	32.11 .18	12.16 .18	50.79 .17	10.22 .93	40.64 .16	33.08 .17	8.61 .18	18.84 .14
Apr. 9.3	31.93 − .18	11.99 − .18	50.62 − .17	9.26 − .99	40.47 − .17	32.89 − .18	8.42 − .19	18.69 − .15
19.3	31.76 .16	11.83 .16	50.45 .16	8.24 1.02	40.30 .15	32.72 .17	8.23 .18	18.54 .14
29.3	31.60 .15	11.67 .14	50.30 .14	7.23 .99	40.16 .14	32.57 .16	8.06 .17	18.41 .14
May 9.2	31.46 − .14	11.53 − .14	50.16 − .14	6.26 − .96	40.01 − .14	32.42 − .16	7.89 − .18	18.26 − .15

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Mean Solar Date.	β Argus.	α Lyncis.	10 Leonis Minoris.	o Leonis.	ζ Chamæleontis.	19 Leonis Minoris.	π Leonis.	λ Ursæ Majoris.
	159° 14′	55° 7′	53° 5′	79° 35′	170° 25′	48° 23′	81° 24′	46° 30′
	h m 9 11	h m 9 13	h m 9 27	h m 9 34	h m 9 37	h m 9 50	h m 9 54	h m 10 10
	s	s	s	s	s	s	s	s
(Dec. 30.6)	58.69 + .41	57.48 + .31	5.17 + .30	56.10 + .28	24.70 + .89	32.77 + .35	3.48 + .30	3.90 + .39
Jan. 9.6	59.06 .30	57.77 .24	5.47 .26	56.36 .23	25.49 .68	33.11 .30	3.76 .24	4.27 .32
19.6	59.30 .17	57.98 .17	5.70 .20	56.54 .16	26.07 .44	33.38 .23	3.97 .18	4.56 .25
29.5	59.42 + .04	58.13 .13	5.87 .15	56.70 .13	26.37 + .17	33.57 .18	4.13 .14	4.78 .21
Feb. 8.5	59.41 − .06	58.24 + .08	6.00 .10	56.82 .09	26.41 − .04	33.76 .13	4.27 .11	4.98 .16
18.5	59.32 − .16	58.30 .00	6.07 + .01	56.90 + .02	26.29 − .24	33.86 + .04	4.36 + .04	5.11 + .07
28.4	59.11 .28	58.26 − .06	6.04 − .05	56.88 − .03	25.95 .48	33.85 − .02	4.36 − .01	5.13 .00
Mar. 10.4	58.78 .37	58.17 .08	5.99 .07	56.84 .05	25.34 .65	33.81 .05	4.34 .03	5.12 − .03
20.4	58.38 .42	58.10 .13	5.91 .12	56.79 .08	24.56 .83	33.75 .11	4.31 .07	5.08 .09
30.4	57.94 .48	57.94 .18	5.76 .17	56.68 .13	23.69 .95	33.62 .17	4.21 .11	4.95 .15
Apr. 9.3	57.43 − .54	57.76 − .19	5.58 − .19	56.54 − .14	22.67 −1.11	33.44 − .19	4.09 − .13	4.78 − .19
19.3	56.87 .56	57.57 .18	5.39 .18	56.40 .14	21.49 1.20	33.25 .19	3.96 .13	4.60 .18
29.3	56.32 .56	57.39 .18	5.22 .19	56.27 .14	20.27 1.22	33.06 .20	3.83 .13	4.42 .20
May 9.3	55.77 .56	57.21 .19	5.03 .20	56.12 .15	19.06 1.25	32.85 .23	3.70 .15	4.20 .22
19.2	55.19 − .56	57.01 − .16	4.82 − .17	55.97 − .13	17.79 −1.28	32.63 − .19	3.54 − .13	3.97 − .21

Mean Solar Date.	μ Hydri.	β Leonis Minoris.	α Antliæ.	β Octantis, S. P.	41 Leonis Minoris.	d^3 Chamæleontis.	46 Leonis Minoris.	Groombr. 1706.
	106° 14′	52° 42′	120° 28′	188° 0′	66° 12′	169° 55′	55° 9′	11° 36′
	h m 10 20	h m 10 21	h m 10 21	h m 10 33	h m 10 37	h m 10 44	h m 10 46	h m 10 50
	s	s	s	s	s	s	s	s
Jan. 19.6	28.16 + .20	9.11 + .24	50.29 + .21	52.98 − .73	5.19 + .23	48.17 + .80	47.97 + .26	37.81 + .88
29.6	28.33 .16	9.32 .21	50.46 .16	52.37 .48	5.40 .20	48.86 .58	48.21 .23	38.65 .75
Feb. 8.5	28.49 .13	9.53 .17	50.62 .13	52.02 − .23	5.60 .16	49.32 .40	48.44 .19	39.34 .57
18.5	28.60 .06	9.67 .08	50.73 + .06	51.92 + .01	5.74 .10	49.65 + .21	48.60 .11	39.79 .31
28.5	28.63 + .01	9.70 + .01	50.76 .00	52.03 .23	5.79 + .04	49.75 − .04	48.67 .06	39.96 + .12
Mar. 10.5	28.62 − .02	9.70 − .01	50.74 − .03	52.39 + .47	5.82 .00	49.57 − .25	48.71 + .02	40.01 − .04
20.4	28.60 .05	9.69 .07	50.72 .06	52.97 .69	5.81 − .04	49.25 .39	48.71 − .03	39.87 .28
30.4	28.53 .09	9.58 .13	50.63 .11	53.76 .90	5.75 .09	48.80 .55	48.64 .09	39.45 .50
Apr. 9.4	28.42 .12	9.44 .15	50.50 .13	54.77 1.09	5.65 .11	48.15 .74	48.53 .12	38.86 .62
19.4	28.30 .12	9.30 .16	50.36 .14	55.94 1.25	5.53 .12	47.31 .87	48.41 .13	38.20 .73
29.4	28.19 − .12	9.14 − .17	50.22 − .15	57.27 +1.39	5.42 − .14	46.41 − .93	48.27 − .15	37.41 − .90
May 9.3	28.05 .15	8.95 .20	50.08 .17	58.72 1.50	5.28 .16	45.47 1.02	48.11 .17	36.38 .96
19.3	27.89 .14	8.75 .18	49.89 .17	60.27 1.59	5.12 .15	44.38 1.12	47.92 .17	35.51 .89
29.3	27.77 .11	8.59 .15	49.73 .14	61.89 1.63	4.98 .13	43.24 1.12	47.77 .15	34.60 .90
June 8.2	27.67 − .09	8.45 − .14	49.60 − .12	63.51 +1.61	4.87 − .11	42.15 −1.07	47.63 − .13	33.68 − .90

APPARENT RIGHT ASCENSIONS AND APPROXIMATE NORTH POLAR DISTANCES, FOR TRANSIT AT WASHINGTON.

Mean Solar Date.	η Octantis.	p^3 Leonis.	ψ Urs. Maj.	ν Urs. Maj.	ξ Hydræ.	χ Urs. Maj.	π Virginis.	ϵ Corvi.
	173° 58′	87° 25′	44° 52′	56° 16′	121° 12′	41° 34′	82° 44′	111° 58′
	h m 11 0	h m 11 0	h m 11 3	h m 11 12	h m 11 27	h m 11 39	h m 11 54	h m 12 4
	s	s	s	s	s	s	s	s
Feb. 8.6	19.85 + .76	58.46 + .17	7.45 + .24	11.88 + .21	17.53 + .21	54.46 + .28	54.75 + .22	8.99 + .24
18.6	20.49 .50	58.61 .12	7.65 .15	12.07 .14	17.73 .15	54.71 .20	54.95 .17	9.20 .19
28.5	20.78 + .07	58.69 .06	7.73 .08	12.16 .08	17.83 .09	54.87 .14	55.08 .12	9.34 .13
Mar. 10.5	20.62 − .29	58.73 + .03	7.80 + .04	12.23 + .05	17.90 .05	54.98 .09	55.18 .09	9.45 .10
20.5	20.19 .53	58.75 − .01	7.81 − .02	12.27 .00	17.95 + .02	55.05 + .02	55.27 + .05	9.54 .06
30.4	19.57 − .80	58.72 − .05	7.75 − .09	12.23 − .06	17.93 − .03	55.03 − .05	55.29 .00	9.58 + .02
Apr. 9.4	18.60 1.13	58.66 .08	7.63 .13	12.14 .10	17.89 .07	54.94 .10	55.26 − .03	9.57 − .02
19.4	17.30 1.36	58.57 .09	7.49 .15	12.04 .12	17.80 .08	54.83 .13	55.22 .04	9.53 .04
29.4	15.87 1.47	58.48 .10	7.34 .18	11.93 .13	17.73 .10	54.70 .17	55.18 .06	9.50 .06
May 9.3	14.36 1.65	58.37 .12	7.13 .20	11.79 .15	17.61 .13	54.50 .20	55.10 .09	9.43 .10
19.3	12.57 −1.84	58.24 − .12	6.91 − .21	11.61 − .16	17.45 − .14	54.28 − .21	54.99 − .10	9.32 − .11
29.3	10 64 1.89	58.13 .11	6.73 .20	11.46 .15	17.32 .13	54.08 .21	54.90 .10	9.22 .11
June 8.3	8.80 1.85	58.04 .10	6.54 .19	11.33 .14	17.20 .13	53.88 .20	54.81 .10	9.13 .12
18.2	6.90 −1.85	57.94 − .10	6.36 − .18	11.20 − .13	17.08 − .12	53.68 − .20	54.71 − .10	8.99 − .19

Mean Solar Date.	2 Can. Ven.	6 Urs. Min.	δ^2 Corvi.	β Can. Ven.	γ Virginis, (*mean.*)	31 Cor. Bor.	γ Cassiop., S. P.	43 Cephei, S. P.
	48° 41′	1° 39′	105° 52′	48° 0′	90° 48′	61° 49′	330° 5′	355° 38′
	h m 12 10	h m 12 13	h m 12 23	h m 12 28	h m 12 35	h m 12 46	h m 12 49	h m 12 52
	s	s	s	s	s	s	s	s
Feb. 8.6	17.69 + .20	96.62 +5.36	50.99 + .25	12.99 + .30	45.95 + .26	1.80 + .28	39.86 − .31	56.30 −2.35
18.6	17.96 .22	101.03 4.23	51.23 .20	13.27 .24	46.19 .21	2.06 .23	39.58 .25	54.15 1.95
28.6	18.12 .16	105.05 3.36	51.39 .15	13.45 .18	46.35 .15	2.24 .18	39.37 .19	52.41 1.53
Mar. 10.5	18.28 .12	107.82 1.95	51.51 .12	13.63 .14	46.49 .13	2.41 .15	39.21 .11	51.10 1.06
20.5	18.38 + .07	108.96 + .24	51.63 .08	13.75 .09	46.61 .09	2.55 .10	39.15 − .03	50.30 − .53
30.5	18.40 .00	108.26 −1.24	51.69 + .04	13.80 + .02	46.68 + .05	2.63 + .05	39.15 + .05	50.04 + .03
Apr. 9.5	18.37 − .04	106.46 2.32	51.70 .00	13.79 − .03	46.69 + .01	2.65 + .01	39.25 .14	50.36 .56
19.4	18.33 .07	103.66 3.56	51.68 − .01	13.76 .06	46.69 − .01	2.65 − .01	39.43 .22	51.16 1.07
29.4	18.24 .11	99.34 4.92	51.67 .04	13.68 .10	46.68 .03	2.62 .05	39.68 .30	52.50 1.56
May 9.4	18.10 .15	93.77 5.76	51.62 .07	13.56 .13	46.65 .07	2.56 .08	40.02 .37	54.23 1.96
19.4	17.94 − .16	87.78 −6.22	51.52 − .09	13.40 − .14	46.56 − .08	2.45 − .10	40.42 + .43	56.43 +2.32
29.3	17.80 .16	81.33 6.84	51.45 .09	13.26 .16	46.49 .08	2.36 .11	40.88 .47	58.93 2.61
June 8.3	17.63 .18	74.07 7.36	51.37 .10	13.10 .18	46.42 .10	2.26 .13	41.35 .51	61.64 2.80
18.3	17.43 .19	66.55 7.98	51.24 .12	12.80 .19	46.29 .11	2.10 .14	41.89 .57	64.52 2.94
28.2	17.25 − .18	59.46 −6.82	51.12 − .12	12.71 − .19	46.18 − .11	1.96 − .14	42.45 + .62	67.56 +3.04

APPARENT RIGHT ASCENSIONS AND APPROXIMATE NORTH POLAR DISTANCES, FOR TRANSIT AT WASHINGTON.

Mean Solar Date.	δ Muscæ.	ε Virginis.	20 Can. Ven.	κ Octantis.	B.A.C. 4536.	m Virginis.	θ Apodis.	π Hydræ.
	160° 55′	78° 25′	48° 49′	175° 11′	52° 13′	98° 7′	166° 14′	116° 7′
	h m	h m	h m	h m	h m	h m	h m	h m
	12 54	12 56	13 12	13 22	13 29	13 35	13 54	13 59
	s	s	s	s	s	s	s	s
Feb. 8.7	19.35 + .64	22.99 + .28	19.27 + .36	29.30 +2.68	35.74 + .36	30.12 + .32	3.66 +1.11	44.66 + .37
18.6	19.98 .55	23.25 .22	19.59 .28	31.73 2.24	36.05 .29	30.41 .25	4.67 .93	44.99 .29
28.6	20.44 .42	23.43 .17	19.83 .23	33.74 1.81	36.30 .24	30.61 .20	5.50 .78	45.24 .24
Mar. 10.6	20.81 .34	23.60 .14	20.04 .20	35.34 1.49	36.52 .21	30.81 .19	6.22 .69	45.47 .23
20.6	21.11 .26	23.74 .11	20.23 .15	36.71 1.21	36.72 .16	31.00 .15	6.88 .60	45.70 .20
30.5	21.34 + .15	23.81 + .07	20.32 + .08	37.76 + .81	36.83 + .10	31.12 + .10	7.42 + .45	45.87 + .15
Apr. 9.5	21.42 + .03	23.86 .04	20.38 + .03	38.32 + .34	36.90 .06	31.20 .07	7.78 .29	45.99 .11
19.5	21.40 − .04	23.88 + .01	20.39 .00	38.41 − .02	36.95 + .02	31.26 .06	7.99 .18	46.08 .09
29.5	21.32 .11	23.88 − .02	20.37 − .05	38.29 .31	36.96 − .02	31.32 + .03	8.14 + .08	46.16 .06
May 9.4	21.17 .22	23.85 .05	20.31 .10	37.83 .75	36.92 .06	31.33 − .02	8.16 − .09	46.21 + .02
19.4	20.88 − .31	23.77 − .07	20.19 − .12	36.81 −1.17	36.83 − .09	31.29 − 03	7.96 − .24	46.20 − .01
29.4	20.54 .35	23.71 .08	20.08 .14	35.49 1.39	36.74 .11	31.26 .04	7.67 .31	46.19 .02
June 8.4	20.20 .41	23.64 .10	19.95 .16	34.06 1.64	36.63 .14	31.23 .06	7.34 .43	46.17 .05
18.3	19.75 .49	23.51 .11	19.76 .18	32.25 1.97	36.47 .15	31.14 .09	6.84 .57	46.08 .09
28.3	19.24 .54	23.40 .11	19.58 .19	30.12 2.17	36.31 .16	31.04 .09	6.22 .64	45.98 .10
July 8.3	18.69 − .58	23.29 − .11	19.41 − .19	27.90 −2.21	36.15 − .18	30.95 − .10	5.56 − .68	45.88 − .11
18.2	18.08 − .62	23.18 − .11	19.21 − .19	25.71 −2.18	35.97 − .19	30.83 − .12	4.86 − .72	45.75 − .13

Mean Solar Date.	d Bootis.	κ Virginis.	δ Octantis.	4 Urs. Min.	λ Bootis.	λ Virginis.	α Apodis.	μ Hydri, S. P.
	64° 21′	99° 44′	173° 8′	11° 54′	43° 22′	102° 50′	168° 33′	190° 23′
	h m	h m	h m	h m	h m	h m	h m	h m
	14 5	14 6	14 8	14 9	14 11	14 12	14 33	14 34
	s	s	s	s	s	s	s	s
Feb. 18.7	5.41 + .27	41.30 + .26	30.06 +1.79	20.23 + .99	57.51 + .32	48.79 + .24	29.87 +1.16	5.38 − .96
28.6	5.66 .24	41.54 .24	31.75 1.59	21.17 .90	57.82 .30	49.02 .23	30.98 1.07	4.44 .92
Mar. 10.6	5.89 .22	41.75 .22	33.23 1.43	22.01 .76	58.11 .28	49.25 .22	31.99 .99	3.54 .86
20.6	6.10 .18	41.96 .19	34.60 1.24	22.69 .57	58.37 .23	49.47 .19	32.95 .89	2.72 .80
30.6	6.26 .14	42.13 .15	35.73 .98	23.15 .39	58.55 .16	49.64 .15	33.77 .72	1.95 .68
Apr. 9.5	6.36 + .10	42.24 + .11	36.53 + .65	23.46 + .24	58.69 + .11	49.76 + .12	34.40 + .55	1.35 − .50
19.5	6.45 .07	42.33 .09	37.03 .42	23.62 + .04	58.78 .07	49.86 .10	34.85 .42	0.95 .31
29.5	6.51 + .03	42.42 .06	37.28 + .21	23.54 − .18	58.83 + .02	49.95 .07	35.22 .28	0.72 − .13
May 9.5	6.52 .00	42.47 + .02	37.46 − .13	23.26 .34	58.81 − .03	50.01 + .03	35.43 + .08	0.69 + .07
19.4	6.49 − .04	42.45 .00	37.12 .43	22.86 .48	58.75 .07	50.00 .00	35.37 − .11	0.87 .28
29.4	6.45 − .05	42.45 − .01	36.60 − .62	22.31 − .63	58.67 − .10	50.00 − .01	35.20 − .22	1.24 + .46
June 8.4	6.40 .06	42.43 .04	35.91 .86	21.59 .78	58.56 .15	49.99 .04	34.95 .37	1.78 .63
18.4	6.29 .11	42.36 .08	34.90 1.13	20.76 .85	58.37 .18	49.92 .07	34.47 .55	2.50 .79
28.3	6.17 .12	42.27 .09	33.65 1.30	19.90 .90	58.18 .19	49.84 .08	33.83 .68	3.36 .92
July 8.3	6.06 .13	42.19 .10	32.29 1.39	18.95 .98	57.99 .21	49.76 .10	33.12 .74	4.35 1.05
18.3	5.92 − .14	42.08 − .11	30.86 −1.50	17.93 −1.03	57.75 − .24	49.64 − .13	32.35 − .85	5.46 +1.13
28.2	5.79 − .14	41.98 − .11	29.28 −1.64	16.91 −1.02	57.51 − .26	49.50 − .15	31.45 − .96	6.61 +1.15

APPARENT RIGHT ASCENSIONS AND APPROXIMATE NORTH POLAR DISTANCES, FOR TRANSIT AT WASHINGTON.

Mean Solar Date.	33 Bootis.	47 Cephei, S. P.	γ Scorpii.	δ Bootis.	ρ Octantis.	β Cor. Bor.	γ Camelop., S. P.	δ¹ Apodis.
	45° 5′	348° 57′	114° 49′	56° 15′	174° 4′	60° 29′	340° 58′	168° 24′
	h m 14 34	h m 14 50	h m 14 57	h m 15 10	h m 15 16	h m 15 23	h m 15 38	h m 16 3
	s	s	s	s	s	s	s	s
Mar. 30.6	31.29 + .19	34.58 − .50	16.46 + .20	49.38 + .18	48.85 +1.49	2.50 + .20	2.40 − .41	3.62 + .96
Apr. 9.6	31.45 .15	34.18 .30	16.64 .17	49.55 .17	50.25 1.32	2.68 .18	2.05 .29	4.54 .91
19.6	31.57 .10	33.97 − .11	16.79 .15	49.71 .14	51.49 1.15	2.84 .15	1.83 .16	5.41 .84
29.5	31.65 + .05	33.97 + .11	16.95 .13	49.83 .10	52.56 .90	2.98 .11	1.73 − .04	6.21 .71
May 9.5	31.67 .00	34.19 .34	17.05 .08	49.91 .06	53.31 .50	3.07 .07	1.76 + .10	6.84 .51
19.5	31.63 − .04	34.66 + .55	17.10 + .05	49.94 + .02	53.55 + .13	3.12 + .03	1.92 + .23	7.21 + .33
29.5	31.59 .07	35.29 .72	17.15 + .04	49.95 − .01	53.56 − .10	3.15 + .01	2.22 .35	7.49 .22
June 8.4	31.50 .12	36.11 .88	17.17 .00	49.93 .05	53.37 .44	3.15 − .03	2.62 .46	7.66 + .02
18.4	31.35 .16	37.07 1.03	17.13 − .05	49.85 .08	52.70 .84	3.09 .07	3.15 .56	7.55 − .20
28.4	31.19 .17	38.17 1.15	17.07 .07	49.74 .11	51.69 1.19	3.00 .09	3.74 .64	7.25 .34
July 8.4	31.01 − .20	39.35 +1.22	17.00 − .09	49.63 − .14	50.49 −1.30	2.91 − .12	4.42 + .71	6.88 − .47
18.3	30.79 .23	40.61 1.27	16.89 .12	49.48 .17	49.11 1.57	2.78 .15	5.16 .76	6.32 .63
28.3	30.56 .25	41.89 1.29	16.76 .14	49.29 .20	47.35 1.78	2.60 .17	5.93 .79	5.60 .79
Aug. 7.3	30.33 .24	43.19 1.29	16.61 .14	49.09 .21	45.52 1.83	2.42 .18	6.73 .80	4.74 .86
17.2	30.10 .23	44.46 1.26	16.47 .14	48.90 .20	43.70 1.84	2.24 .19	7.53 .80	3.88 .89
27.2	29.88 − .22	45.71 +1.24	16.34 − .13	48.72 − .18	41.90 −1.84	2.04 − .20	8.32 + .78	2.98 − .95

Mean Solar Date.	φ Herculis.	σ Cor. Bor. (*mean.*)	γ Apodis.	η Urs. Min.	η Ophiuchi.	π Herculis.	θ Ophiuchi.	δ Aræ.
	44° 45′	55° 51′	168° 38′	13° 59′	105° 35′	53° 3′	114° 53′	150° 35′
	h m 16 5	h m 16 10	h m 16 15	h m 16 20	h m 17 3	h m 17 10	h m 17 14	h m 17 20
	s	s	s	s	s	s	s	s
Apr. 9.6	6.98 + .25	19.92 + .23	42.58 +1.00	58.39 + .66	42.66 + .22	60.26 + .23	52.12 + .27	36.66 + .50
19.6	7.21 .21	20.14 .20	43.52 .89	58.99 .52	42.88 .22	60.49 .23	52.38 .26	37.14 .49
29.6	7.40 .16	20.32 .16	44.35 .78	59.42 .36	43.10 .21	60.72 .22	52.64 .26	37.62 .47
May 9.6	7.54 .12	20.47 .12	45.09 .59	59.69 .21	43.30 .19	60.93 .19	52.86 .22	38.04 .37
19.5	7.62 .07	20.55 .08	45.52 .40	59.84 + .06	43.48 .16	61.10 .15	53.06 .18	38.36 .32
29.5	7.69 + .03	20.63 + .05	45.87 + .28	59.83 − .10	43.64 + .15	61.24 + .12	53.25 + .17	38.68 + .29
June 8.5	7.69 − .02	20.67 .00	46.10 + .08	59.64 .26	43.78 .11	61.33 .07	53.43 .13	38.95 .20
18.5	7.63 .07	20.64 − .05	46.14 − .15	59.32 .39	43.85 .06	61.37 + .02	53.50 .08	39.08 .11
28.4	7.54 .11	20.59 .07	45.80 .30	58.85 .52	43.89 + .03	61.37 − .02	53.57 .05	39.16 + .05
July 8.4	7.42 .16	20.51 .10	45.45 .43	58.28 .64	43.92 .00	61.34 .06	53.61 + .02	39.19 − .01
18.4	7.24 − .20	20.38 − .14	44.94 − .61	57.58 − .74	43.89 − .04	61.25 − .11	53.59 − .04	39.12 − .11
28.3	7.02 .23	20.22 .18	44.23 .78	56.79 .81	43.82 .09	61.12 .15	53.52 .08	38.97 .19
Aug. 7.3	6.78 .25	20.03 .20	43.38 .86	55.96 .88	43.71 .12	60.94 .18	53.41 .11	38.74 .25
17.3	6.53 .27	19.83 .21	42.51 .90	55.03 .94	43.59 .14	60.75 .21	53.29 .14	38.48 .28
27.3	6.26 .29	19.61 .23	41.59 .99	54.08 .96	43.45 .17	60.53 .23	53.14 .17	38.18 .35
Sept. 6.2	5.96 − .28	19.36 − .23	40.52 −1.02	53.13 − .95	43.27 − .18	60.26 − .24	52.93 − .19	37.77 − .38
16.2	5.69 .25	19.14 .22	39.53 .93	52.18 .93	43.08 .18	60.02 .25	52.75 .19	37.40 .37
26.2	5.43 .24	18.94 .20	38.60 .83	51.27 .90	42.90 .19	59.78 .25	52.58 .19	37.04 .36
Oct. 6.2	5.20 − .22	18.77 − .18	37.74 − .78	50.39 − .86	42.70 − .19	59.54 − .24	52.38 − .19	36.68 − .34

APPARENT RIGHT ASCENSIONS AND APPROXIMATE NORTH POLAR DISTANCES, FOR TRANSIT AT WASHINGTON.

Mean Solar Date.	Groombr. .944, S.P.	ι Herculis.	θ Herculis.	o Herculis.	λ Sagittarii.	χ Draconis.	ζ Pavonis.	γ Lyræ.
	355° 8′ h m 17 24	43° 56′ h m 17 36	52° 44′ h m 17 52	61° 15′ h m 18 3	115° 29′ h m 18 20	17° 19′ h m 18 23	161° 32′ h m 18 29	57° 28′ h m 18 54
	s	s	s	s	s	s	s	s
May 19.6	35.06 − .51	12.53 + .18	17.11 + .19	1.42 + .20	48.37 + .25	13.10 + .40	28.80 + .66	36.55 + .27
29.6	34.78 − .05	12.71 .14	17.29 .17	1.61 .18	48.62 .24	13.45 .31	29.40 .58	38.62 .26
June 8.5	34.96 + .40	12.83 .08	17.45 .12	1.79 .14	48.85 .20	13.69 .20	29.95 .46	37.05 .20
18.5	35.59 .86	12.89 + .03	17.52 .07	1.88 .09	49.00 .15	13.83 + .07	30.30 .31	37.20 .15
28.5	36.68 1.30	12.89 − .02	17.57 + .02	1.95 .05	49.12 .11	13.84 − .06	30.57 .24	37.31 .10
July 8.5	38.18 +1.69	12.86 − .07	17.57 − .02	1.98 + .01	49.22 + .07	13.71 − .19	30.77 + .12	37.39 + .06
18.4	40.05 2.02	12.76 .12	17.53 .07	1.96 − .04	49.27 + .09	13.46 .30	30.80 − .04	37.43 + .01
28.4	42.20 2.31	12.62 .17	17.43 .12	1.89 .09	49.25 − .03	13.11 .41	30.70 .17	37.40 − .05
Aug. 7.4	44.68 2.60	12.42 .21	17.29 .16	1.78 .13	49.20 .07	12.64 .52	30.47 .26	37.33 .09
17.4	47.36 2.75	12.19 .24	17.12 .19	1.65 .16	49.12 .10	12.07 .61	30.18 .36	37.22 .13
27.3	50.18 +2.89	11.94 − .27	16.91 − .21	1.48 − .20	49.00 − .15	11.42 − .67	29.76 − .49	37.08 − .18
Sept. 6.3	53.15 3.01	11.64 .30	16.66 .24	1.26 .22	48.81 .18	10.71 .73	29.19 .56	36.87 .21
16.3	56.18 3.03	11.34 .30	16.42 .25	1.05 .22	48.63 .19	9.95 .77	28.63 .56	36.66 .22
26.2	59.20 2.99	11.05 .30	16.16 .25	0.84 .22	48.46 .20	9.16 .79	28.06 .61	36.45 .24
Oct. 6.2	62.15 2.91	10.74 .31	15.91 .26	0.60 .23	48.24 .22	8.37 .77	27.41 .69	36.20 .25
16.2	65.01 +2.81	10.45 − .30	15.66 − .26	0.36 − .24	48.02 − .22	7.60 − .75	26.79 − .59	35.96 − .24
26.2	67.80 +2.70	10.15 − .30	15.40 − .26	0.12 − .24	47.80 − .21	6.90 − .70	26.25 − .51	35.74 − .22

Mean Solar Date.	ι Lyræ.	25 Camelop. S. P.	θ Lyræ.	β Cygni.	β Sagittæ.	δ Cygni.	Groombr. 1374, S.P.	ε Pavonis.
	54° 5′ h m 19 3	352° 38′ h m 19 6	52° 4′ h m 19 12	62° 17′ h m 19 26	72° 48′ h m 19 35	45° 9′ h m 19 41	344° 14′ h m 19 46	163° 13′ h m 19 47
	s	s	s	s	s	s	s	s
May 29.6	10.40 + .25	22.35 − .69	21.14 + .26	2.92 + .26	50.39 + .27	21.84 + .30	10.28 − .37	9.40 + .80
June 8.6	10.64 .20	21.80 .41	21.39 .21	3.17 .22	50.65 .23	22.11 .25	9.96 .27	10.20 .70
18.6	10.80 .15	21.53 − .13	21.56 .16	3.34 .17	50.83 .18	22.32 .19	9.75 .15	10.92 .62
28.6	10.92 .10	21.55 + .16	21.70 .11	3.50 .13	50.99 .15	22.48 .15	9.67 − .02	11.52 .48
July 8.5	11.01 .06	21.86 .45	21.79 .07	3.62 .09	51.13 .11	22.62 .10	9.72 + .11	11.96 .40
18.5	11.05 + .01	22.44 + .72	21.84 + .02	3.69 + .04	51.23 + .06	22.69 + .04	9.89 + .24	12.23 + .19
28.5	11.03 − .05	23.30 .98	21.81 − .04	3.70 − .01	51.25 + .01	22.69 − .02	10.20 .37	12.33 + .04
Aug. 7.4	10.95 .09	24.39 1.20	21.75 .09	3.66 .05	51.24 − .03	22.64 .07	10.64 .48	12.31 − .07
17.4	10.84 .13	25.69 1.40	21.64 .13	3.60 .09	51.21 .06	22.54 .13	11.15 .56	12.19 .21
27.4	10.70 .18	27.19 1.60	21.50 .17	3.49 .14	51.12 .11	22.40 .18	11.77 .68	11.91 .37
Sept. 6.4	10.48 − .21	28.88 +1.75	21.28 − .21	3.32 − .17	50.97 − .15	22.19 − .22	12.51 + .77	11.44 − .48
16.3	10.26 .22	30.69 1.86	21.06 .23	3.15 .18	50.83 .16	21.95 .24	13.30 .83	10.94 .52
26.3	10.04 .24	32.60 1.95	20.84 .25	2.96 .20	50.67 .18	21.72 .27	14.17 .90	10.42 .63
Oct. 6.3	9.79 .25	34.59 2.01	20.58 .26	2.73 .22	50.47 .20	21.43 .29	15.09 .94	9.69 .72
16.3	9.52 .24	36.61 2.00	20.32 .25	2.50 .21	50.27 .19	21.13 .29	16.05 .96	8.99 .68
26.2	9.30 − .22	38.58 +1.97	20.07 − .23	2.30 − .19	50.09 − .17	20.85 − .28	17.00 + .97	8.34 − .64
Nov. 5.2	9.09 − .20	40.55 +1.94	19.85 − .21	2.12 − .18	49.92 − .16	20.58 − .27	17.98 + .98	7.70 − .63

APPARENT RIGHT ASCENSIONS AND APPROXIMATE NORTH POLAR DISTANCES, FOR TRANSIT AT WASHINGTON.

Mean Solar Date.	γ Sagittæ.	c Sagittarii.	θ Aquilæ.	o¹ Cygni.	α Delphini.	β Pavonis.	ψ Capricor.	ε Cygni.
	70° 49′	118° 2′	91° 10′	43° 37′	74° 30′	156° 37′	115° 41′	56° 28′
	h m 19 53	h m 19 55	h m 20 5	h m 20 9	h m 20 34	h m 20 34	h m 20 39	h m 20 41
	s	s	s	s	s	s	s	s
June 28.6	36.57 + .18	31.62 + .21	19.47 + .20	60.27 + .20	15.48 + .22	30.17 + .46	13.56 + .25	32.00 + .20
July 8.5	36.73 .13	31.82 .17	19.66 .16	60.44 .15	15.67 .17	30.61 .36	13.80 .21	32.18 .16
18.5	36.83 .08	31.96 .11	19.78 .10	60.55 .08	15.83 .12	30.93 .24	13.99 .15	32.30 .12
28.5	36.88 + .03	32.04 .05	19.86 .05	60.59 + .01	15 91 .07	31.10 .15	14.10 .10	32.39 .07
Aug. 7.5	36.88 − .01	32.07 + .01	19.88 + .01	60.56 − .05	15.96 + .03	31.22 + .08	14.17 .06	32.43 + .02
17.4	36.85 − .05	32.07 − .03	19.89 − .02	60.51 − .09	15.98 − .01	31.26 − .03	14.22 + .01	32.43 − .02
27.4	36.77 .10	32.02 .09	19.85 .07	60.40 .15	15.96 .06	31.16 .17	14.20 − .04	32.40 .07
Sept. 6.4	36.65 .14	31.88 .14	19.73 .11	60.21 .20	15.86 .10	30.92 .25	14.12 .09	32.28 .12
16.4	36.51 .15	31.75 .15	19.62 .13	59.99 .23	15.74 .12	30.65 .31	14.02 .11	32.14 .15
26.3	36.36 .18	31.60 .17	19.50 .15	59.76 .26	15.62 .15	30.32 .36	13.90 .14	32.00 .18
Oct. 6.3	36.16 − .20	31.40 − .20	19.32 − .17	59.48 − .28	15.45 − .17	29.86 − .38	13.73 − .18	31.79 − .21
16.3	35.96 .19	31.20 .19	19.14 .17	59.18 .29	15.27 .18	29.37 .40	13.54 .18	31.57 .21
26.2	35.78 .18	31.02 .18	18.97 .15	58.90 .28	15.10 .17	28.93 .45	13.37 .17	31.37 .21
Nov. 5.2	35.61 .17	30.85 .17	18.82 .15	58.63 .27	14.94 .16	28.46 .47	13.20 .17	31.16 .21
15.2	35.44 .15	30.69 .15	18.68 .14	58.36 .25	14.77 .16	27.98 .44	13.02 .15	30.96 .20
25.2	35.30 − .11	30.54 − .10	18.55 − .11	58.11 − .22	14.61 − .14	27.57 − .37	12.86 − .12	30.76 − .17
Dec. 5.1	35.21 − .07	30.47 − .04	18.47 − .05	57.92 − .17	14.51 − .09	27.26 − .26	12.77 − .08	30.60 − .13

Mean Solar Date.	τ Cygni.	ζ Capricor.	74 Cygni.	λ¹ Octantis.	ζ Chamæleontis, S.P.	π² Cygni.	16 Pegasi.	π Pegasi.
	52° 27′	112° 55′	50° 7′	173° 15′	189° 35′	41° 14′	64° 38′	57° 24′
	h m 21 10	h m 21 20	h m 21 32	h m 21 32	h m 21 37	h m 21 42	h m 21 47	h m 22 4
	s	s	s	s	s	s	s	s
July 8.6	10.84 + .18	2.75 + .19	19.17 + .21	62.70 +1.15	12.22 − .80	32.00 + .25	47.70 + .22	50.94 + .24
18.6	10.99 .14	2.93 .17	19.35 .17	63.73 1.00	11.50 .64	32.24 .20	47.91 .18	51.16 .20
28.5	11.11 .10	3.09 .13	19.51 .12	64.61 .78	10.94 .44	32.42 .15	48.08 .14	51.34 .16
Aug. 7.5	11.19 + .05	3.20 .10	19.60 .07	65.30 .48	10.63 .22	32.52 .09	48.19 .10	51.47 .12
17.5	11.22 .00	3.29 + .05	19.66 + .03	65.67 + .08	10.50 − .02	32.60 + .03	48.27 .06	51.58 .08
27.5	11.20 − .05	3.31 − .01	19.67 − .02	65.56 − .22	10.59 + .23	32.60 − .03	48.30 + .01	51.64 + .02
Sept. 6.4	11.11 .10	3.27 .05	19.60 .08	65.22 .52	10.97 .48	32.54 .09	48.28 − .04	51.61 − .03
16.4	10.99 .13	3.21 .07	19.50 .11	64.50 .85	11.53 .66	32.42 .13	48.23 .07	51.57 .06
26.4	10.86 .17	3.12 .11	19.38 .15	63.54 1.17	12.29 .87	32.29 .17	48.16 .10	51.51 .10
Oct. 6.3	10.67 .20	2.97 .15	19.21 .19	62.17 1.44	13.27 1.07	32.08 .22	48.02 .14	51.38 .14
16.3	10.45 − .22	2.81 − .16	19.00 − .21	60.66 −1.53	14.43 +1.22	31.84 − .24	47.87 − .16	51.23 − .16
26.3	10.24 .21	2.66 .16	18.79 .21	59.09 1.67	15.71 1.32	31.60 .25	47.72 .16	51.07 .17
Nov. 5.3	10.03 .21	2.49 .17	18.58 .22	57.32 1.79	17.06 1.38	31.35 .26	47.56 .17	50.90 .18
15.2	9.81 .21	2.32 .16	18.36 .23	55.49 1.77	18.46 1.40	31.08 .27	47.39 .18	50.71 .19
25.2	9.59 .20	2.15 .13	18.13 .21	53.76 1.65	19.85 1.35	30.80 .26	47.21 .16	50.52 .18
Dec. 5.2	9.42 − .18	2.04 − .11	17.94 − .18	52.18 −1.50	21.16 +1.25	30.55 − .23	47.06 − .14	50.35 − .16
15.2	9.27 .15	1.96 .10	17.78 .17	50.74 1.35	22.38 1.11	30.34 .22	46.94 .13	50.21 .16
25.1	9.13 − .14	1.86 − .10	17.62 − .16	49.46 −1.22	23.32 + .89	30.13 − .21	46.81 − .13	50.06 − .15

APPARENT RIGHT ASCENSIONS AND APPROXIMATE NORTH POLAR DISTANCES, FOR TRANSIT AT WASHINGTON.

Mean Solar Date.	υ Octantis.	γ Aquarii.	σ Aquarii.	α Lacertæ.	10 Lacertæ.	β Octantis.	λ Pegasi.	Groombr. 1706, S.P.
	176° 34′	91° 59′	101° 17′	40° 19′	51° 34′	172° 0′	67° 4′	348° 24′
	h m 22 8	h m 22 15	h m 22 24	h m 22 26	h m 22 34	h m 22 34	h m 22 40	h m 22 50
	s	s	s	s	s	s	s	s
Aug. 7.6	76.36 +1.45	40.53 + .14	30.98 + .15	32.76 + .15	4.82 + .15	11.55 + .82	57.61 + .16	29.74 − .29
17.5	77.48 + .72	40.66 .10	31.13 .11	32.90 .11	4.97 .11	12.23 .50	57.76 .12	29.50 .16
27.5	77.79 − .02	40.74 + .05	31.23 .06	32.97 + .04	5.06 + .06	12.56 + .18	57.86 .11	29.42 − .01
Sept. 6.5	77.43 .58	40.74 .00	31.24 + .01	32.98 − .02	5.08 .00	12.60 − .06	57.89 + .02	29.47 + .14
16.4	76.66 1.15	40.73 − .02	31.24 − .01	32.94 .07	5.06 − .03	12.45 .29	57.89 − .01	29.71 .32
26.4	75.16 −1.90	40.71 − .06	31.22 − .06	32.86 − .11	5.03 − .07	12.03 − .65	57.88 − .05	30.11 + .47
Oct. 6.4	72.83 2.47	40.61 .10	31.13 .09	32.72 .16	4.92 .12	11.15 .95	57.81 .09	30.65 .61
16.4	70.10 2.82	40.49 .11	31.01 .11	32.53 .20	4.77 .15	10.15 1.07	57.69 .11	31.32 .76
26.3	67.30 3.21	40.38 .12	30.91 .12	32.32 .22	4.63 .16	9.03 1.25	57.58 .12	32.17 .90
Nov. 5.3	63.88 3.53	40.26 .14	30.78 .14	32.09 .24	4.46 .18	7.66 1.43	57.46 .14	33.11 1.00
15.3	60.23 −3.57	40.11 − .15	30.63 − .15	31.86 − .26	4.27 − .20	6.17 −1.47	57.32 − .16	34.17 +1.11
25.2	56.71 3.43	39.96 .13	30.48 .13	31.58 .26	4.06 .20	4.70 1.45	57.15 .15	35.33 1.18
Dec. 5.2	53.37 3.30	39.85 .11	30.37 .12	31.32 .24	3.88 .18	3.27 1.38	57.01 .14	36.53 1.22
15.2	50.08 3.14	39.74 .11	30.26 .11	31.10 .24	3.71 .18	1.93 1.37	56.89 .14	37.76 1.24
25.2	47.06 2.87	39.64 .10	30.14 .10	30.85 .23	3.52 .17	0.68 −1.23	56.74 .14	39.00 1.23
35.1	44.40 −2.50	39.55 − .09	30.05 − .09	30.62 − .22	3.35 − .17	. . . .	56.60 − .13	40.20 +1.20

Mean Solar Date.	o Androm.	ϕ Aquarii.	τ Pegasi.	λ Androm.	i^1 Aquarii.	δ Sculptoris.	γ^1 Octantis.	33 Piscium.
	48° 18′	96° 41′	66° 54′	44° 11′	108° 56′	118° 47′	172° 40′	96° 22′
	h m 22 56	h m 23 8	h m 23 14	h m 23 31	h m 23 38	h m 23 42	h m 23 45	h m 23 59
	s	s	s	s	s	s	s	s
Aug. 17.6	36.72 + .15	19.60 + .12	54.79 + .15	55.03 + .17	11.62 + .18	53.49 + .18	19.20 + .96	24.43 + .19
27.5	36.85 .09	19.71 .09	54.92 .11	55.19 .12	11.78 .14	53.66 .14	20.09 .68	24.60 .14
Sept. 6.5	36.90 + .03	19.77 .06	54.99 .07	55.28 .07	11.89 .10	53.77 .10	20.64 .43	24.71 .10
16.5	36.90 .00	19.82 + .03	55.04 + .03	55.34 + .04	11.97 .06	53.86 .07	20.98 + .15	24.80 .08
26.4	36.89 − .05	19.84 − .01	55.07 − .01	55.38 .00	12.01 + .02	53.90 + .02	20.94 − .23	24.88 + .03
Oct. 6.4	36.81 − .10	19.80 − .05	55.03 − .05	55.35 − .06	11.99 − .03	53.88 − .04	20.51 − .54	24.87 − .01
16.4	36.68 .13	19.72 .08	54.95 .08	55.26 .10	11.94 .05	53.83 .06	19.86 .77	24.85 .03
26.4	36.54 .15	19.64 .09	54.87 .09	55.15 .12	11.89 .06	53.77 .09	18.99 1.05	24.81 .05
Nov. 5.3	36.40 .17	19.54 .11	54.77 .12	55.01 .15	11.80 .11	53.66 .12	17.75 1.32	24.76 .08
15.3	36.21 .19	19.41 .13	54.64 .14	54.85 .19	11.67 .13	53.52 .14	16.32 1.46	24.66 .10
25.3	36.00 − .20	19.28 − .12	54.49 − .14	54.64 − .20	11.54 − .13	53.37 − .14	14.82 −1.53	24.55 − .11
Dec. 5.3	35.80 .19	19.17 .11	54.36 .13	54.44 .19	11.42 .13	53.24 .15	13.26 1.63	24.45 .11
15.2	35.61 .20	19.06 .12	54.24 .14	54.25 .20	11.30 .14	53.11 .15	11.56 1.68	24.34 .12
25.2	35.42 .20	18.93 .11	54.08 .14	54.02 .22	11.15 .14	52.92 .14	9.88 1.58	24.20 .12
35.2	35.23 − .19	18.81 − .09	53.95 − .12	53.80 − .21	11.03 − .12	52.80 − .11	8.39 −1.39	24.08 − .12

APPARENT RIGHT ASCENSIONS AND APPROXIMATE NORTH POLAR DISTANCES, FOR TRANSIT AT WASHINGTON.

Mean Solar Date.	β Cassiop.	22 Androm.	σ Androm.	ι Ceti.	6 Urs. Min., S. P.	44 Piscium.	π Androm.	ο Cassiop.
	31° 29′ h m 0 2	44° 34′ h m 0 4	53° 51′ h m 0 12	99° 28′ h m 0 13	358° 21′ h m 0 13	88° 42′ h m 0 19	56° 55′ h m 0 30	42° 21′ h m 0 38
	s	s	s	s	s	s	s	s
Jan. 0.2	60.67 − .33	18.53 − .22	16.96 − .15	31.20 − .11	64.18 +7.50	27.81 − .11	42.09 − .17	17.07 − .22
10.2	60.35 .31	18.31 .20	16.80 .16	31.09 .11	71.66 7.42	27.70 .11	41.93 .17	16.85 .23
20.2	60.05 .29	18.13 .19	16.64 .16	30.99 .10	78.90 7.04	27.61 .10	41.78 .16	16.61 .23
30.2	59.77 − .27	17.94 − .18	16.48 − .15	30.89 − .09	85.61 +6.38	27.51 − .09	41.62 − .15	16.39 − .22
. . . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Aug. 26.6	65.07 + .22	22.23 + .16	20.34 + .18	34.26 + .15	23.02 −3.22	30.83 + .15	45.26 + .18	20.52 + .24
Sept. 5.6	65.26 .17	22.38 .13	20.50 .14	34.40 .13	20.30 2.22	30.97 .13	45.43 .16	20.74 .19
15.5	65.40 .10	22.49 .09	20.62 .10	34.51 .09	18.57 1.23	31.09 .09	45.57 .11	20.90 .14
25.5	65.46 + .04	22.55 + .05	20.69 .05	34.57 .06	17.88 − .16	31.15 .06	45.65 .08	21.02 .10
Oct. 5.5	65.48 − .01	22.58 .00	20.72 + .01	34.62 + .02	18.30 + .98	31.20 + .03	45.72 + .05	21.09 + .05
15.4	65.43 − .08	22.55 − .05	20.72 − .02	34.61 − .02	19.84 +2.08	31.21 − .01	45.74 .00	21.12 .00
25.4	65.32 .13	22.49 .09	20.68 .05	34.58 .04	22.42 3.12	31.19 .04	45.72 − .03	21.10 − .04
Nov. 4.4	65.16 .19	22.38 .12	20.62 .09	34.53 .07	26.16 4.27	31.14 .06	45.68 .06	21.04 .09
14.4	64.95 .23	22.25 .14	20.51 .12	34.45 .09	30.87 5.18	31.07 .08	45.60 .10	20.93 .12
24.3	64.70 .26	22.09 .16	20.38 .14	34.35 .11	36.46 6.02	30.98 .10	45.49 .12	20.80 .15
Dec. 4.3	64.44 − .28	21.91 − .19	20.24 − .15	34.23 − .12	42.87 +6.76	30.87 − .11	45.37 − .13	20.63 − .18
14.3	64.14 .31	21.71 .21	20.08 .16	34.12 .12	49.87 7.24	30.76 .11	45.24 .14	20.45 .20
24.2	63.82 .33	21.50 .22	19.91 .17	33.99 .13	57.27 7.54	30.65 .12	45.09 .16	20.24 .22
34.2	63.50 − .32	21.28 − .22	19.74 − .17	33.87 − .13	64.84 +7.57	30.53 − .12	44.92 − .16	20.02 − .22

Mean Solar Date.	δ Piscium.	γ Cassiop.	μ Androm.	43 Cephei.	f Piscium.	κ Tucanæ.	κ Octantis, S. P.	υ Androm.
	83° 3′ h m 0 42	29° 55′ h m 0 49	52° 8′ h m 0 50	4° 22′ h m 0 53	87° 0′ h m 1 11	159° 30′ h m 1 11	184° 49′ h m 1 22	49° 11′ h m 1 30
	s	s	s	s	s	s	s	s
Jan. 0.3	40.49 − .11	44.60 − .33	20.11 − .17	15.05 −2.70	49.71 − .13	49.53 − .56	27.48 +2.87	1.01 − .17
10.2	40.38 .12	44.27 .34	19.93 .18	12.32 2.75	49.58 .13	48.97 .56	30.36 2.89	0.83 .19
20.2	40.25 .13	43.92 .34	19.76 .18	9.56 2.75	49.45 .13	48.41 .55	33.25 2.86	0.64 .21
30.2	40.13 − .12	43.59 − .33	19.58 − .17	6.85 −2.68	49.32 − .13	47.88 − .51	36.00 +2.65	0.41 − .23
. . . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Sept. 5.6	43.47 + .16	48.81 + .25	23.41 + .18	32.35 +1.52	52.40 + .19	52.99 + .37	24.01 −1.52	3.99 + .25
15.6	43.61 .12	49.04 .20	23.58 .15	33.67 1.12	52.57 .15	53.32 .29	22.69 1.11	4.22 .20
25.5	43.70 .08	49.21 .13	23.70 .10	34.58 .70	52.69 .11	53.57 .20	21.80 .66	4.39 .16
Oct. 5.5	43.76 .04	49.30 .07	23.78 .06	35.07 + .28	52.78 .07	53.72 .10	21.37 − .19	4.53 .12
15.5	43.80 + .02	49.35 + .02	23.82 + .03	35.14 − .15	52.84 .04	53.79 + .02	21.42 + .31	4.62 .08
25.5	43.80 − .01	49.34 − .05	23.83 − .01	34.76 − .60	52.87 + .01	53.76 − .07	21.99 + .81	4.68 + .05
Nov. 4.4	43.77 .04	49.25 .11	23.80 .05	33.95 1.03	52.87 − .02	53.63 .18	23.04 1.30	4.71 + .01
14.4	43.73 .06	49.12 .17	23.74 .08	32.70 1.44	52.84 .04	53.41 .27	24.60 1.76	4.69 − .04
24.4	43.66 .08	48.92 .22	23.64 .11	31.07 1.82	52.79 .06	53.09 .36	26.54 2.13	4.64 .07
Dec. 4.3	43.57 .10	48.69 .25	23.52 .13	29.06 2.17	52.72 .08	52.70 .43	28.86 2.48	4.55 .10
14.3	43.47 − .11	48.43 − .29	23.38 − .15	26.73 −2.45	52.64 − .10	52.23 − .50	31.44 +2.70	4.44 − .13
24.3	43.35 .12	48.12 .33	23.23 .16	24.16 2.66	52.52 .11	51.71 .55	34.20 2.83	4.29 .16
34.3	43.23 − .12	47.78 − .35	23.06 − .17	21.42 −2.80	52.41 − .12	51.13 − .61	37.04 +2.86	4.12 − .18

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Mean Solar Date.	π Piscium.	ν Piscium.	ζ Ceti.	γ Androm.	β Trianguli.	4 Urs. Min., S. P.	γ Trianguli.	67 Ceti.
	78° 27′ h m 1 30	85° 6′ h m 1 35	100° 55′ h m 1 45	48° 14′ h m 1 56	55° 34′ h m 2 2	348° 6′ h m 2 9	56° 41′ h m 2 10	96° 57′ h m 2 11
	s	s	s	s	s	s	s	s
Jan. 0.3	57.98 − .13	24.64 − .12	44.91 − .13	44.62 − .17	40.18 − .13	14.02 +1.00	26.80 − .13	12.83 − .10
10.3	57.85 .13	24.52 .13	44.78 .13	48.44 .19	40.04 .16	15.06 1.08	26.66 .16	12.72 .12
20.2	57.72 .14	24.39 .14	44.65 .14	48.25 .20	39.87 .17	16.17 1.14	26.49 .17	12.59 .14
30.2	57.57 .13	24.25 .14	44.50 .14	48.03 .21	39.70 .18	17.30 1.13	26.32 .18	12.45 .15
Feb. 9.2	57.44 .13	24.12 .13	44.36 .14	47.83 .20	39.51 .18	18.39 1.09	26.14 .19	12.30 .15
19.2	57.32 − .13	24.01 − .11	44.22 − .14	47.64 − .19	39.33 − .18	19.45 +1.03	25.95 − .19	12.15 − .15
. . . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Sept. 25.6	60.89 + .14	27.48 + .12	47.56 + .14	51.87 + .19	43.21 + .18	11.14 − .56	29.74 + .18	15.32 + .16
Oct. 5.5	61.01 .10	27.59 .10	47.69 .11	52.04 .16	43.38 .16	10.65 .42	29.91 .16	15.47 .13
15.5	61.08 .06	27.67 .07	47.77 .08	52.18 .12	45.52 .12	10.30 .26	30.06 .13	15.58 .10
25.5	61.13 + .03	27.72 + .04	47.84 + .05	52.27 + .07	43.61 + .08	10.13 − .08	30.17 + .09	15.66 + .07
Nov. 4.5	61.15 + .01	27.75 + .02	47.87 + .02	52.32 + .04	43.68 .05	10.13 + .10	30.23 .06	15.72 + .04
14.4	61.15 − .02	27.75 − .01	47.87 − .01	52.34 .00	43.71 + .01	10.32 .29	30.28 + .03	15.74 + .01
24.4	61.11 .05	27.72 .04	47.84 .04	52.33 − .04	43.70 − .03	10.72 .47	30.28 − .01	15.74 − .02
Dec. 4.4	61.06 .06	27.66 .07	47.79 .06	52.27 .08	43.66 .06	11.26 .62	30.25 .05	15.71 .05
14.3	60.99 − .09	27.59 − .09	47.73 − .09	52.17 − .12	43.59 − .09	11.98 + .80	30.19 − .09	15.65 − .08
24.3	60.88 .11	27.49 .11	47.62 .12	52.04 .15	43.48 .13	12.84 .93	30.08 .12	15.56 .10
34.3	60.77 − .12	27.37 − .12	47.50 − .13	51.87 − .16	43.33 − .16	13.85 +1.06	29.94 − .14	15.45 − .12

Mean Solar Date.	δ Hydri.	δ Ceti.	μ Hydri.	θ Persei.	σ Arietis.	47 Cephei.	ε Arietis.	β Persei, (*Algol.*)
	159° 11′ h m 2 19	90° 10′ h m 2 33	169° 37′ h m 2 34	41° 16′ h m 2 36	75° 24′ h m 2 45	11° 3′ h m 2 50	69° 7′ h m 2 52	49° 30′ h m 3 0
	s	s	s	s	s	s	s	s
Jan. 0.3	41.86 − .52	33.43 − .10	10.02 −1.13	19.13 − .15	6.78 − .09	50.08 − .72	36.38 − .10	39.48 − .12
10.3	41.32 .56	33.32 .11	8.85 1.21	18.95 .20	6.68 .12	49.30 .87	36.28 .12	39.37 .14
20.3	40.74 .59	33.21 .13	7.61 1.25	18.72 .24	6.55 .14	48.37 .98	36.15 .14	39.20 .18
30.3	40.15 .59	33.06 .15	6.36 1.25	18.48 .25	6.41 .15	47.35 1.04	36.00 .16	39.00 .21
Feb. 9.2	39.57 .58	32.91 .16	5.12 1.23	18.23 .26	6.26 .16	46.31 1.06	35.84 .17	38.78 .22
19.2	39.00 − .56	32.75 − .16	3.91 −1.19	17.97 − .26	6.10 − .16	45.25 −1.05	35.67 − .17	38.56 − .22
. . . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Sept. 25.6	43.93 + .35	35.77 + .18	11.29 + .74	22.24 + .27	9.19 + .19	56.19 + .89	38.80 + .20	42.16 + .26
Oct. 5.6	44.23 .25	35.94 .16	11.91 .50	22.50 .24	9.37 .17	57.02 .77	38.99 .19	42.41 .24
15.6	44.43 .15	36.08 .13	12.29 .28	22.71 .19	9.53 .15	57.72 .62	39.17 .17	42.63 .20
25.5	44.53 + .05	36.19 + .09	12.47 + .07	22.88 + .15	9.66 + .11	58.26 + .46	39.32 + .13	42.81 + .17
Nov. 4.5	44.52 − .06	36.26 .06	12.43 − .15	23.01 .10	9.75 .08	58.64 .28	39.43 .09	42.96 .13
14.5	44.40 .18	36.32 .04	12.16 .38	23.08 .06	9.83 .06	58.81 + .10	39.50 .06	43.06 .09
24.4	44.16 .28	36.34 + .01	11.68 .58	23.12 + .01	9.87 + .02	58.84 − .05	39.55 + .04	43.13 + .05
Dec. 4.4	43.84 .36	36.33 − .03	11.01 .76	23.10 − .05	9.87 − .02	58.65 .28	39.57 .00	43.15 .00
14.4	43.44 − .44	36.29 − .05	10.16 − .94	23.03 − .10	9.84 − .04	58.27 − .48	39.55 − .04	43.13 − .05
24.4	42.97 .50	36.23 .08	9.15 1.09	22.90 .14	9.79 .07	57.69 .65	39.50 .07	43.06 .09
34.3	42.45 − .54	36.13 − .11	8.04 −1.15	22.75 − .17	9.70 − .10	56.97 − .78	39.41 − .10	42.94 − .13

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Mean Solar Date.	ρ Octantis, S. P.	ι Hydri.	f Tauri.	γ Camelop.	γ Hydri.	ε Persei.	A¹ Tauri.	c Persei.
	c 185° 56′	167° 49′	77° 28′	19° 2′	164° 36′	50° 20′	68° 15′	42° 36′
	h m 3 16	h m 3 18	h m 3 24	h m 3 38	h m 3 49	h m 3 50	h m 3 57	h m 4 0
	s	s	s	s	s	s	s	s
Jan. 0.4	40.59 +2.18	54.39 − .89	29.70 − .10	12.78 − .30	5.29 − .60	6.53 − .08	52.18 − .04	17.20 − .08
10.3	42.83 2.30	53.44 .98	29.59 .12	12.43 .40	4.64 .70	6.44 .12	52.12 .09	17.10 .13
20.3	45.19 2.42	52.41 1.06	29.46 .15	11.99 .47	3.89 .80	6.31 .15	52.01 .12	16.95 .18
30.3	47.66 2.47	51.34 1.08	29.30 .16	11.49 .53	3.05 .85	6.14 .19	51.88 .15	16.75 .22
Feb. 9.3	50.12 2.47	50.25 1.09	29.14 .17	10.93 .58	2.19 .88	5.94 .22	51.72 .17	16.51 .25
19.2	52.60 +2.44	49.15 −1.09	28.97 − .17	10.33 − .60	1.29 − .90	5.71 − .23	51.55 − .18	16.26 − .26
29.2	54.96 +2.30	48.08 −1.06	28.81 − .16	9.73 − .60	0.39 − .89	5.48 − .23	51.36 − .19	15.99 − .27
. .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Oct. 5.6	47.59 −1.13	54.12 + .60	32.01 + .20	16.85 + .60	4.29 + .60	9.05 + .28	54.33 + .26	19.80 + .30
15.6	46.65 .75	54.65 .46	32.20 .18	17.41 .52	4.83 .47	9.32 .26	54.57 .23	20.10 .29
25.5	46.09 − .36	55.01 + .26	32.36 + .15	17.89 + .44	5.23 + .34	9.56 + .23	54.78 + .19	20.39 + .27
Nov. 4.5	45.93 + .07	55.17 + .07	32.50 .13	18.28 .34	5.49 .19	9.77 .19	54.95 .17	20.63 .22
14.5	46.24 .51	55.16 − .11	32.62 .10	18.57 .24	5.61 + .04	9.93 .15	55.11 .14	20.83 .18
24.5	46.93 .90	54.95 .30	32.69 .06	18.76 + .13	5.59 − .10	10.07 .11	55.23 .10	20.98 .13
Dec. 4.4	48.04 1.31	54.56 .48	32.73 + .03	18.82 .00	5.42 .24	10.15 .06	55.30 .06	21.09 .08
14.4	49.54 +1.66	53.98 − .65	32.74 − .01	18.77 − .11	5.10 − .40	10.18 + .01	55.35 + .03	21.14 + .01
24.4	51.33 1.92	53.27 .78	32.72 .04	18.60 .23	4.62 .53	10.17 − .04	55.36 − .01	21.12 − .04
34.4	53.38 +2.16	52.41 − .94	32.66 − .07	18.32 − .34	4.04 − .62	10.10 − .09	55.32 − .05	21.07 − .07

Mean Solar Date.	o¹ Eridani.	η Urs. Min., S. P.	m Persei.	δ Mensæ.	τ Tauri.	ι Tauri.	ζ Aurigæ.	β Eridani.
	97° 9′	346° 2′	47° 11′	170° 29′	67° 16′	71° 22′	49° 6′	95° 14′
	h m 4 6	h m 4 20	h m 4 25	h m 4 25	h m 4 35	h m 4 44	h m 4 54	h m 5 2
	s	s	s	s	s	s	s	s
Jan. 0.4	13.76 − .04	48.44 + .46	17.80 − .05	55.78 − .86	18.98 − .01	37.25 + .01	24.75 + .01	10.57 + .01
10.4	13.70 .09	48.98 .62	17.74 .09	54.80 1.09	18.95 .05	37.24 − .04	24.73 − .05	10.56 − .04
20.4	13.59 .12	49.68 .77	17.63 .14	53.62 1.25	18.87 .09	37.18 .09	24.65 .11	10.50 .09
30.3	13.47 .14	50.51 .85	17.47 .18	52.33 1.34	18.76 .13	37.07 .13	24.52 .15	10.39 .12
Feb. 9.3	13.32 .16	51.38 .90	17.27 .22	50.93 1.43	18.62 .16	36.93 .15	24.35 .20	10.26 .14
19.3	13.16 − .18	52.32 + .95	17.04 − .24	49.47 −1.48	18.45 − .18	36.77 − .17	24.13 − .23	10.11 − .17
29.2	12.97 .19	53.28 .95	16.80 .24	47.98 1.48	18.26 .19	36.59 .18	23.90 .24	9.93 .18
Mar. 10.2	12.79 − .18	54.21 + .90	16.56 − .24	46.52 −1.42	18.07 − .19	36.40 − .19	23.65 − .25	9.75 − .18
. .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Oct. 15.6	15.69 + .18	47.81 − .73	20.42 + .27	51.80 + .86	21.14 + .26	39.29 + .24	27.06 + .33	12.15 + .22
25.6	15.86 + .17	47.15 − .60	20.69 + .27	52.58 + .68	21.39 + .24	39.53 + .23	27.37 + .30	12.37 + .22
Nov. 4.6	16.03 .16	46.62 .45	20.95 .25	53.17 .46	21.61 .20	39.76 .21	27.66 .28	12.59 .20
14.5	16.17 .13	46.26 .29	21.17 .20	53.51 + .22	21.79 .17	39.95 .18	27.92 .24	12.76 .17
24.5	16.29 .09	46.03 − .14	21.35 .16	53.61 − .03	21.95 .15	40.11 .15	28.13 .19	12.93 .15
Dec. 4.5	16.35 .05	45.98 + .04	21.49 .11	53.45 .28	22.08 .10	40.24 .11	28.30 .15	13.06 .10
14.5	16.38 + .02	46.12 + .22	21.56 + .06	53.04 − .54	22.15 + .06	40.33 + .07	28.43 + .09	13.13 + .07
24.4	16.39 − .01	46.42 .38	21.61 + .02	52.38 .77	22.19 + .02	40.37 + .03	28.48 + .03	13.19 + .04
34.4	16.36 − .04	46.89 + .56	21.60 − .03	51.50 − .98	22.18 − .02	40.38 − .01	28.49 − .01	13.20 − .01

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Mean Solar Date.	τ Orionis.	χ Aurigæ.	Groombr. 944.	κ Orionis.	ν Aurigæ.	δ Doradus.	β Aurigæ.	θ Aurigæ.
	96° 58′	57° 54′	4° 52′	99° 43′	50° 53′	155° 47′	45° 4′	52° 48′
	h m 5 11	h m 5 25	h m 5 25	h m 5 42	h m 5 43	h m 5 44	h m 5 51	h m 5 51
	s	s	s	s	s	s	s	s
Jan. 0.4	60.20 + .01	13.01 + .04	16.18 − .20	17.10 + .04	29.46 + .06	37.29 − .15	3.87 + .07	51.11 + .08
10.4	60.19 − .03	13.04 − .01	15.65 .77	17.12 − .01	29.50 + .01	37.10 .23	3.93 + .01	51.16 + .02
20.4	60.14 .07	13.01 .06	14.64 1.24	17.08 .06	29.48 − .05	36.83 .32	3.91 − .06	51.15 − .04
30.4	60.05 .11	12.92 .11	13.18 1.66	17.01 .10	29.39 .11	36.46 .40	3.82 .11	51.08 .10
Feb. 9.3	59.91 .14	12.79 .16	11.33 2.00	16.89 .13	29.27 .15	36.02 .47	3.69 .17	50.96 .14
19.3	59.77 − .16	12.61 − .19	9.17 −2.26	16.75 − .16	29.09 − .20	35.52 − .52	3.49 − .22	50.80 − .18
29.3	59.59 .18	12.42 .20	6.80 2.41	16.58 .18	28.87 .23	34.99 .56	3.26 .24	50.60 .22
Mar. 10.3	59.40 .19	12.21 .22	4.35 2.47	16.39 .19	28.64 .24	34.41 .57	3.01 .26	50.36 .24
20.2	59.21 − .19	11.98 − .23	1.87 −2.48	16.20 − .19	28.40 − .24	33.84 − .56	2.74 − .27	50.13 − .23
. .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Oct. 25.6	61.91 + .23	15.27 + .29	24.52 +2.56	18.58 + .25	31.71 + .33	36.13 + .46	6.18 + .36	53.27 + .31
Nov. 4.6	62.13 .21	15.55 .27	26.90 2.20	18.82 .23	32.03 .31	36.56 .40	6.53 .34	53.58 .30
14.6	62.32 .19	15.81 .25	28.93 1.88	19.04 .21	32.33 .29	36.92 .32	6.86 .31	53.87 .28
24.5	62.50 .16	16.04 .21	30.64 1.48	19.23 .18	32.60 .25	37.20 .22	7.15 .28	54.13 .25
Dec. 4.5	62.64 .11	16.23 .17	31.90 1.02	19.39 .15	32.83 .20	37.37 .12	7.41 .23	54.37 .21
14.5	62.72 + .07	16.38 + .12	32.69 + .53	19.53 + .11	33.00 + .15	37.45 + .03	7.60 + .17	54.55 + .16
24.5	62.78 + .04	16.47 .07	32.95 + .02	19.60 .06	33.12 .09	37.44 − .07	7.75 .11	54.69 .11
34.4	62.80 .00	16.52 + .02	32.73 − .46	19.64 + .02	33.18 + .03	37.31 − .18	7.82 + .04	54.77 + .05

Mean Solar Date.	η Geminor.	ψ¹ Aurigæ.	ν Geminor.	χ Draconis, S.P.	ε Geminor.	ψ⁵ Aurigæ.	θ Geminor.	ζ Mensæ.
	67° 28′	40° 39′	69° 43′	342° 41′	64° 45′	46° 19′	55° 54′	170° 41′
	h m 6 7	h m 6 15	h m 6 22	h m 6 23	h m 6 36	h m 6 38	h m 6 45	h m 6 49
	s	s	s	s	s	s	s	s
Jan. 0.5	54.64 + .08	60.71 + .12	6.58 + .08	4.23 + .05	49.80 + .11	25.16 + .13	10.87 + .13	49 18 − .14
10.5	54.71 + .04	60.79 + .04	6.64 + .04	4.34 .18	49.89 .06	25.27 + .07	10.98 .08	48.91 .40
20.4	54.72 − .01	60.79 − .04	6.66 .00	4.56 .30	49.92 + .01	25.30 .00	11.03 + .02	48.39 .64
30.4	54.67 .07	60.72 .11	6.63 − .05	4.95 .45	49.91 − .05	25.28 − .06	11.02 − .04	47.62 .88
Feb. 9.4	54.57 .11	60.59 .15	6.55 .10	5.45 .54	49.83 .10	25.18 .12	10.95 .09	46.65 1.06
19.4	54.45 − .14	60.42 − .21	6.42 − .14	6.03 + .63	49.72 − .13	25.04 − .17	10.84 − .14	45.49 −1.24
29.3	54.29 .17	60.17 .26	6.27 .17	6.70 .72	49.58 .17	24.85 .20	10.67 .18	44.21 1.36
Mar. 10.3	54.11 .19	59.90 .28	6.09 .19	7.46 .76	49.39 .19	24.64 .23	10.47 .20	42.79 1.46
20.3	53.91 .19	59.62 .29	5.90 .19	8.21 .77	49.20 .20	24.39 .26	10.27 .21	41.31 1.50
30.3	53.72 .19	59.33 .28	5.71 .19	8.99 .77	49.00 .20	24.12 .26	10.05 .23	39.80 1.51
Apr. 9.2	53.53 − .18	59.06 − .26	5.53 − .18	9.75 + .75	48.81 − .19	23.86 − .25	9.81 − .24	38.29 −1.50
. .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Nov. 14.6	57.04 + .27	63.66 + .36	8.85 + .28	4.60 − .59	52.09 + .30	27.80 + .36	13.29 + .31	42.80 +1.00
24.6	57.29 .24	64.00 .32	9.11 .25	4.08 .45	52.37 .27	28.14 .32	13.59 .29	43.69 .78
Dec. 4.6	57.51 .20	64.30 .27	9.34 .20	3.70 .32	52.62 .23	28.43 .28	13.86 .26	44.35 .54
14.5	57.68 + .15	64.54 + .22	9.51 + .17	3.43 − .20	52.82 + .19	28.69 + .24	14.10 + .22	44.78 + .30
24.5	57.81 .11	64.73 .16	9.67 .13	3.30 − .06	52.99 .15	28.90 .18	14.29 .17	44.93 + .02
34.5	57.90 + .07	64.85 + .09	9.77 + .08	3.33 + .10	53.12 + .11	29.04 + .12	14.44 + .15	44.82 − .24

APPARENT RIGHT ASCENSIONS AND APPROXIMATE NORTH POLAR DISTANCES, FOR TRANSIT AT WASHINGTON.

Mean Solar Date.	ζ Geminor.	63 Aurigæ.	25 Camelop.	γ^2 Volantis.	β Can. Min.	26 Lyncis.	Groombr. 1374.	ω^1 Cancri.
	69° 16′	50° 29′	7° 22′	160° 19′	81° 29′	42° 8′	15° 46′	64° 17′
	h m 6 57	h m 7 3	h m 7 6	h m 7 9	h m 7 20	h m 7 46	h m 7 46	h m 7 53
	s	s	s	s	s	s	s	s
Jan. 0.5	15.78 + .12	42.89 + .17	48.34 + .62	48.22 + .06	53.50 + .14	18.20 + .21	22.41 + .49	56.67 + .17
10.5	15.88 .08	43.03 .10	48.79 + .28	48.21 − .08	53.62 .10	18.39 .16	22.80 .29	56.82 .14
20.5	15.93 + .03	43.09 + .03	49.88 − .08	48.06 .20	53.69 + .04	18.52 .10	22.99 + .12	56.95 .09
30.4	15.93 − .02	43.10 − .03	48.64 .42	47.80 .30	53.71 − .01	18.59 + .03	23.05 − .02	57.00 + .03
Feb. 9.4	15.89 .07	43.05 .08	48.04 .76	47.44 .41	53.68 .05	18.58 − .04	22.93 .20	57.01 − .02
19.4	15.79 − .12	42.94 − .14	47.14 −1.03	46.98 − .51	53.61 − .10	18.50 − .11	22.64 − .36	56.96 − .07
29.4	15.65 .15	42.77 .18	45.99 1.96	46.42 .59	53.49 .13	18.35 .17	22.22 .49	56.87 .11
Mar. 10.3	15.50 .17	42.58 .21	44.62 1.45	45.81 .64	53.35 .15	18.16 .22	21.67 .60	56.74 .15
20.3	15.32 .19	42.35 .23	43.10 1.56	45.15 .68	53.19 .17	17.93 .25	21.04 .66	56.57 .17
30.3	15.13 .19	42.12 .23	41.54 1.60	44.46 .69	53.01 .18	17.67 .26	20.35 .71	56.39 .18
Apr. 9.2	14.94 − .18	41.88 − .22	39.92 −1.60	43.78 − .68	52.83 − .17	17.40 − .27	19.63 − .72	56.21 − .19
19.2	14.76 − .17	41.68 − .19	38.38 −1.51	43.11 − .66	52.66 − .16	17.14 − .25	18.91 − .72	56.02 − .19
. .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Nov. 24.6	18.19 + .27	45.64 + .31	55.52 +1.60	46.86 + .47	55.65 + .26	20.87 + .41	26.09 + .88	58.91 + .31
Dec. 4.6	18.44 .24	45.94 .29	57.02 1.38	47.28 .36	55.90 .24	21.26 .37	26.92 .76	59.21 .29
14.6	18.66 + .20	46.22 + .25	58.29 +1.12	47.59 + .26	56.12 + .20	21.61 + .32	27.65 + .67	59.49 + .27
24.5	18.84 .16	46.44 .20	59.26 .81	47.79 + .13	56.30 .16	21.90 .28	28.26 .55	59.74 .23
34.5	18.98 + .12	46.61 + .15	59.89 + .46	47.85 − .01	56.44 + .12	22.16 + .22	28.75 + .43	59.94 + .18

Mean Solar Date.	ζ^1 Cancri.	β Cancri.	30 Monocerotis.	θ Chamæleontis.	σ Hydræ.	γ Cancri.	σ^2 Cancri, (*mean.*)	θ Hydræ.
	72° 0′	80° 27′	93° 32′	167° 7′	86° 15′	68° 7′	58° 59′	87° 12′
	h m 8 5	h m 8 10	h m 8 19	h m 8 24	h m 8 32	h m 8 36	h m 8 47	h m 9 8
	s	s	s	s	s	s	s	s
Jan. 0.6	35.37 + .18	15.22 + .19	53.60 + .19	12.52 + .32	43.45 + .20	36.10 + .23	11.71 + .25	21.36 + .23
10.6	35.53 .15	15.39 .15	53.77 .15	12.76 + .17	43.62 .16	36.30 .19	11.94 .21	21.56 .19
20.5	35.66 .10	15.52 .10	53.89 .09	12.85 − .01	43.77 .12	36.46 .14	12.12 .15	21.73 .15
30.5	35.73 + .05	15.58 + .04	53.95 + .04	12.74 .20	43.85 .06	36.57 .08	12.24 .09	21.85 .10
Feb. 9.5	35.75 .00	15.60 − .01	53.97 .00	12.45 .37	43.89 + .02	36.61 + .02	12.29 + .04	21.92 + .05
19.4	35.72 − .06	15.57 − .06	53.95 − .05	12.00 − .53	43.88 − .04	36.61 − .03	12.31 − .01	21.95 .00
29.4	35.62 .11	15.49 .10	53.88 .09	11.38 .68	43.82 .08	36.56 .08	12.26 .07	21.92 − .05
Mar. 10.4	35.50 .13	15.38 .13	53.77 .12	10.64 .79	43.72 .11	36.46 .12	12.16 .12	21.86 .09
20.4	35.36 .15	15.24 .15	53.65 .14	9.80 .87	43.60 .14	36.33 .15	12.03 .15	21.75 .12
30.3	35.19 .17	15 08 .16	53.49 .16	8.90 .94	43.45 .16	36.17 .17	11.86 .17	21.63 .13
Apr. 9.3	35.02 − .18	14.92 − .17	53.32 − .17	7.92 − .99	43.29 − .16	36.00 − .17	11.68 − .18	21.50 − .14
19.3	34.84 .17	14.75 .17	53.15 .16	6.92 1.01	43.13 .16	35.83 .17	11.49 .19	21.35 .15
29.2	34.68 .16	14.58 .16	52.99 .16	5.91 1.00	42.97 .15	35.66 .16	11.31 .18	21.20 .14
May 9.2	34.53 − .14	14.44 − .13	52.84 − .14	4.92 − .98	42.82 − .14	35.50 − .15	11.14 − .16	21.06 − .13

APPARENT RIGHT ASCENSIONS AND APPROXIMATE NORTH POLAR DISTANCES, FOR TRANSIT AT WASHINGTON.

Mean Solar Date.	β Argus.	α Lyncis.	10 Leonis Minoris.	o Leonis.	ζ Chamæleontis.	19 Leonis Minoris.	π Leonis.	λ Ursæ Majoris.
	159° 14′	55° 7′	53° 5′	79° 34′	170° 25′	48° 24′	81° 24′	46° 30′
	h m 9 11	h m 9 14	h m 9 27	h m 9 34	h m 9 37	h m 9 50	h m 9 54	h m 10 10
	s	s	s	s	s	s	s	s
Jan. 0.6	59.60 + .40	0.77 + .29	8.47 + .28	59.02 + .27	24.03 + .86	36.07 + .33	6.37 + .27	7.13 + .37
10.6	59.94 .29	1.04 .24	8.74 .26	59.26 .22	24.78 .64	36.38 .30	6.62 .23	7.48 .33
20.5	60.17 .17	1.25 .19	8.99 .21	59.45 .18	25.30 .40	36.66 .25	6.83 .19	7.78 .27
30.5	60.28 + .05	1.42 .13	9.16 .15	59.61 .13	25.58 + .18	36.87 .18	7.00 .15	8.01 .21
Feb. 9.5	60.27 − .06	1.51 .07	9.28 .09	59.71 .08	25.65 − .05	37.02 .12	7.13 .10	8.19 .15
19.5	60.15 − .18	1.55 + .01	9.33 + .03	59.76 + .03	25.47 − .29	37.10 + .05	7.19 + .05	8.30 + .08
29.4	59.91 .30	1.53 − .05	9.33 − .03	59.77 − .02	25.07 .50	37.12 .00	7.22 .00	8.34 + .01
Mar. 10.4	59.57 .37	1.46 .10	9.28 .09	59.73 .06	24.47 .70	37.09 − .07	7.20 − .04	8.33 − .05
20.4	59.18 .44	1.34 .14	9.15 .13	59.65 .09	23.69 .86	36.99 .12	7.14 .08	8.25 .11
30.4	58.70 .50	1.18 .17	9.01 .16	59.54 .12	22.76 1.00	36.86 .15	7.04 .11	8.12 .14
Apr. 9.3	58.18 − .54	1.01 − .18	8.84 − .18	59.41 − .14	21.69 −1.11	36.69 − .18	6.93 − .13	7.97 − .17
19.3	57.63 .56	0.82 .19	8.66 .19	59.27 .15	20.55 1.19	36.50 .20	6.79 .14	7.78 .20
29.3	57.07 .58	0.63 .20	8.46 .20	59.12 .15	19.32 1.24	36.30 .21	6.67 .14	7.58 .21
May 9.2	56.48 .58	0.43 .19	8.27 .19	58.98 .14	18.08 1.26	36.09 .21	6.53 .14	7.37 .20
19.2	55.92 − .55	0.26 − .16	8.09 − .17	58.84 − .13	16.80 −1.28	35.89 − .19	6.39 − .13	7.17 − .19

Mean Solar Date.	μ Hydræ.	β Leonis Minoris.	α Antliæ.	β Octantis, S. P.	41 Leonis Minoris.	δ² Chamæleontis.	46 Leonis Minoris.	Groombr. 1706.
	106° 15′	52° 42′	120° 29′	188° 1′	66° 12′	169° 56′	55° 10′	11° 37′
	h m 10 20	h m 10 21	h m 10 21	h m 10 33	h m 10 37	h m 10 44	h m 10 46	h m 10 50
	s	s	s	s	s	s	s	s
Jan. 20.6	30.83 + .20	12.20 + .26	52.85 + .20	58.01 − .70	8.13 + .24	49.47 + .76	50.97 + .28	41.79 + .94
30.6	31.01 .16	12.44 .21	53.03 .16	57.43 .46	8.35 .20	50.14 .58	51.22 .22	42.63 .74
Feb. 9.6	31.15 .12	12.61 .15	53.17 .12	57.10 − .21	8.52 .15	50.62 .37	51.41 .17	43.27 .54
19.5	31.24 .07	12.73 .09	53.26 .07	57.01 + .02	8.65 .10	50.87 + .16	51.55 .12	43.72 .34
29.5	31.28 + .03	12.79 + .03	53.30 + .01	57.15 .26	8.72 + .05	50.94 − .04	51.64 .06	43.95 + .12
Mar. 10.5	31.29 − .02	12.79 − .03	53.29 − .03	57.52 + .49	8.74 .00	50.78 − .25	51.67 + .01	43.96 − .10
20.4	31.25 .07	12.74 .08	53.24 .07	58.13 .71	8.72 − .04	50.45 .42	51.66 − .03	43.76 .30
30.4	31.16 .10	12.64 .12	53.15 .11	58.94 .91	8.66 .08	49.93 .60	51.60 .09	43.37 .49
Apr. 9.4	31.06 .11	12.50 .15	53.03 .13	59.96 1.11	8.56 .11	49.26 .74	51.49 .12	42.78 .65
19.4	30.94 .13	12.35 .17	52.89 .15	61.14 1.26	8.44 .13	48.45 .88	51.37 .14	42.08 .75
29.3	30.81 − .14	12.17 − .18	52.74 − .16	62.49 +1.42	8.31 − .14	47.53 − .97	51.22 − .16	41.27 − .86
May 9.3	30.67 .14	11.99 .18	52.58 .16	63.96 1.52	8.16 .15	46.51 1.05	51.06 .17	40.37 .92
19.3	30.54 .14	11.81 .18	52.42 .16	65.53 1.61	8.02 .15	45.43 1.10	50.89 .17	39.44 .94
29.3	30.40 .13	11.64 .17	52.26 .15	67.16 1.63	7.87 .14	44.31 1.14	50.72 .16	38.50 .92
June 8.2	30.27 − .12	11.48 − .15	52.11 − .14	68.79 +1.62	7.74 − .12	43.16 −1.16	50.57 − .14	37.59 − .89

APPARENT RIGHT ASCENSIONS AND APPROXIMATE NORTH POLAR DISTANCES, FOR TRANSIT AT WASHINGTON.

Mean Solar Date.	η Octantis.	p^3 Leonis.	ψ Urs. Maj.	ν Urs. Maj.	ξ Hydræ.	χ Urs. Maj.	π Virginis.	ε Corvi.
	173° 58′	87° 25′	44° 52′	56° 16′	121° 13′	41° 35′	82° 44′	111° 58′
	h m 11 0	h m 11 1	h m 11 3	h m 11 12	h m 11 27	h m 11 39	h m 11 54	h m 12 4
	s	s	s	s	s	s	s	s
Feb. 9.6	20.89 + .72	1.23 + .14	10.39 + .20	14.76 + .19	20.28 + .19	57.22 + .28	57.53 + .20	11.84 + .20
19.6	21.44 .38	1.36 .11	10.57 .16	14.93 .15	20.45 .15	57.47 .21	57.71 .17	12.03 .18
29.5	21.65 + .05	1.45 .07	10.70 .09	15.05 .09	20.57 .10	57.64 .14	57.86 .13	12.19 .14
Mar. 10.5	21.54 − .28	1.49 + .03	10.75 + .03	15.11 + .04	20.64 + .05	57.75 .08	57.96 .08	12.30 .09
20.5	21.09 .60	1.51 − .01	10.75 − .03	15.12 − .01	20.66 .00	57.79 + .02	58.01 .04	12.36 .05
30.5	20.36 − .87	1.47 − .05	10.69 − .09	15.09 − .06	20.65 − .03	57.78 − .05	58.04 + .01	12.39 + .02
Apr. 9.4	19.35 1.14	1.42 .07	10.57 .12	15.01 .10	20.61 .07	57.69 .10	58.03 − .03	12.40 − .01
19.4	18.09 1.37	1.33 .10	10.44 .15	14.90 .12	20.52 .10	57.58 .13	57.99 .06	12.37 .04
29.4	16.61 1.57	1.22 .11	10.27 .18	14.77 .14	20.42 .11	57.43 .17	57.92 .08	12.32 .07
May 9.3	14.96 1.72	1.11 .12	10.08 .20	14.63 .15	20.31 .13	57.24 .20	57.83 .09	12.24 .10
19.3	13.17 −1.84	0.99 − .12	9.88 − .21	14.47 − .16	20.17 − .14	57.03 − .21	57.75 − .10	12.15 − .11
29.3	11.28 1.92	0.87 .12	9.67 .20	14.32 .16	20.03 .15	56.82 .22	57.65 .11	12.04 .11
June 8.3	9.33 1.94	0.74 .11	9.48 .20	14.15 .16	19.87 .15	56.59 .22	57.53 .12	11.92 .12
18.2	7.41 −1.90	0.66 − .07	9.27 − .19	13.99 − .15	19.73 − .14	56.38 − .20	57.42 − .11	11.80 − .12

Mean Solar Date.	2 Can. Ven.	6 Urs. Min.	δ^2 Corvi.	β Can. Ven.	γ Virginis, (*mean.*)	31 Cor. Bor.	γ Cassiop., S. P.	43 Cephei, S. P.
	48° 42′	1° 39′	105° 52′	48° 1′	90° 49′	61° 50′	330° 5′	355° 38′
	h m 12 10	h m 12 14	h m 12 23	h m 12 28	h m 12 35	h m 12 46	h m 12 49	h m 12 52
	s	s	s	s	s	s	s	s
Feb. 9.6	20.34 + .27	31.42 +5.50	53.86 + .22	15.48 + .29	48.71 + .24	4.40 + .27	43.30 − .31	64.28 −2.34
19.6	20.59 .22	36.41 4.40	54.06 .19	15.75 .25	48.93 .19	4.65 .23	43.01 .24	62.13 1.96
29.6	20.78 .17	40.20 3.16	54.23 .16	15.97 .19	49.09 .15	4.85 .19	42.82 .17	60.38 1.52
Mar. 10.5	20.92 .11	42.69 1.60	54.37 .12	16.12 .13	49.23 .12	5.02 .15	42.67 .11	59.09 1.05
20.5	21.00 + .05	43.78 + .39	54.47 .07	16.22 .08	49.33 .09	5.14 .09	42.60 − .04	58.29 − .44
30.5	21.02 .00	43.47 −1.00	54.51 + .03	16.28 + .02	49.40 + .05	5.20 + .05	42.59 + .05	58.04 + .04
Apr. 9.5	21.01 − .04	41.79 2.35	54.53 .00	16.27 − .03	49.43 + .01	5.24 + .02	42.69 .14	58.37 .59
19.4	20.95 .07	38.84 3.57	54.52 − .02	16.23 .06	49.43 − .02	5.23 − .02	42.87 .21	59.19 1.07
29.4	20.85 .12	34.72 4.67	54.49 .05	16.15 .10	49.40 .04	5.20 .05	43.11 .29	60.52 1.56
May 9.4	20.71 .15	29.62 5 56	54.43 .07	16.03 .13	49.36 .06	5.13 .08	43.45 .36	62.30 1.98
19.4	20.56 − .16	23.70 −6.28	54.35 − .09	15.89 − .15	49.29 − .08	5.04 − .10	43.84 + .42	64.45 +2.33
29.3	20.40 .17	17.18 6.78	54.26 .10	15.73 .17	49.21 .09	4.93 .12	44.29 .47	66.94 2.62
June 8.3	20.22 .18	10.28 7.06	54.16 .11	15.56 .19	49.12 .10	4.81 .13	44.77 .51	69.64 2.79
18.3	20.04 − .17	3.17 −7.16	54.05 − .11	15.36 − .20	49.01 − .11	4.68 − .13	45.30 + .54	72.50 +2.90

APPARENT RIGHT ASCENSIONS AND APPROXIMATE NORTH POLAR DISTANCES, FOR TRANSIT AT WASHINGTON.

Mean Solar Date.	δ Muscæ.	ε Virginis.	20 Can. Ven.	κ Octantis.	B.A.C. 4536.	m Virginis.	θ Apodis.	π Hydræ.
	160° 55′	78° 25′	48° 49′	175° 11′	52° 13′	98° 7′	166° 14′	116° 7′
	h m 12 54	h m 12 56	h m 13 12	h m 13 22	h m 13 29	h m 13 35	h m 13 54	h m 13 59
	s	s	s	s	s	s	s	s
Feb. 29.6	24.47 + .45	26.13 + .18	22.19 + .22	42.96 + 1.86	38.66 + .26	33.50 + .19	11.11 + .80	48.41 + .23
Mar. 10.6	24.86 .33	26.29 .15	22.39 .19	44.64 1.50	38.89 .20	33.68 .17	11.85 .69	48.63 .21
20.6	25.13 .23	26.42 .10	22.54 .13	45.96 1.13	39.05 .15	33.84 .15	12.48 .56	48.83 .18
30.5	25.32 .13	26.49 .06	22.65 .08	46.89 .74	39.18 .11	33.97 .12	12.97 .43	48.99 .15
Apr. 9.5	25.39 + .03	26.54 + .04	22.72 + .04	47.43 + .35	39.26 .06	34.07 .08	13.33 .30	49.12 .12
19.5	25.38 − .06	26.56 .00	22.73 .00	47.60 − .03	39.29 + .02	34.12 + .04	13.56 + .17	49.22 + .08
29.5	25.27 .14	26.54 − .03	22.71 − .04	47.37 .42	39.29 − .02	34.15 + .02	13.66 + .03	49.28 .05
May 9.4	25.09 .22	26.51 .05	22.64 .09	46.75 .80	39.25 .06	34.16 − .01	13.63 − .10	49.31 + .02
19.4	24.82 .30	26.45 .07	22.53 .12	45.76 1.14	39.17 .09	34.14 .03	13.46 .23	49.32 .00
29.4	24.49 .36	26.38 .09	22.41 .14	44.47 1.44	39.07 .12	34.10 .05	13.17 .34	49.30 − .03
June 8.4	24.10 − .43	26.28 − .10	22.26 − .16	42.87 − 1.75	38.94 − .14	34.04 − .06	12.78 − .46	49.26 − .06
18.3	23.64 .48	26.18 .11	22.10 .17	40.99 1.99	38.80 .15	33.98 .08	12.26 .56	49.18 .09
28.3	23.13 .50	26.06 .12	21.92 .19	38.92 2.16	38.64 .17	33.87 .11	11.66 .64	49.09 .11
July 8.3	22.64 − .49	25.94 − .11	21.73 − .19	36.67 − 2.32	38.46 − .18	33.76 − .12	10.99 − .70	48.97 − .12

Mean Solar Date.	d Bootis.	κ Virginis.	δ Octantis.	4 Urs. Min.	λ Bootis.	λ Virginis.	α Apodis.	μ Hydri, S. P.
	64° 22′	99° 44′	173° 8′	11° 54′	43° 23′	102° 50′	168° 33′	190° 23′
	h m 14 5	h m 14 6	h m 14 8	h m 14 9	h m 14 11	h m 14 12	h m 14 33	h m 14 33
	s	s	s	s	s	s	s	s
Mar. 20.6	8.53 + .18	44.87 + .17	43.61 + 1.18	21.94 + .57	60.34 + .20	52.41 + .19	39.97 + .84	60.85 − .84
30.6	8.69 .14	45.03 .15	44.67 .94	22.42 .39	60.52 .16	52.58 .15	40.74 .70	60.10 .68
Apr. 9.5	8.80 .09	45.16 .12	45.49 .68	22.72 .20	60.66 .11	52.71 .12	41.36 .55	59.52 .48
19.5	8.87 .06	45.25 .08	46.02 .40	22.82 + .02	60.74 .06	52.82 .09	41.84 .40	59.14 .30
29.5	8.92 + .03	45.31 .05	46.29 + .13	22.76 − .16	60.78 + .02	52.88 .06	42.16 .24	58.93 − .12
May 9.5	8.94 .00	45.34 + .03	46.28 − .15	22.50 − .35	60.77 − .03	52.93 + .03	42.31 + .08	58.92 + .09
19.4	8.93 − .04	45.36 .00	46.00 .41	22.07 .51	60.71 .08	52.94 .00	42.31 − .10	59.12 .30
29.4	8.88 .06	45.35 − .03	45.47 .66	21.50 .64	60.61 .12	52.94 − .02	42.12 .26	59.50 .47
June 8.4	8.81 .09	45.31 .06	44.67 .92	20.81 .75	60.48 .15	52.90 .05	41.79 .40	60.07 .66
18.3	8.71 .11	45.24 .08	43.64 1.13	20.01 .85	60.32 .17	52.85 .07	41.31 .55	60.81 .82
28.3	8.60 − .13	45.15 − .10	42.42 − 1.31	19.13 − .92	60.14 − .20	52.77 − .09	40.70 − .68	61.68 + .94
July 8.3	8.46 .14	45.05 .11	41.03 1.47	18.18 .98	59.92 .23	52.67 .11	39.95 .80	62.69 1.07
18.3	8.32 .15	44.94 .12	39.50 1.60	17.18 1.01	59.69 .24	52.55 .13	39.11 .88	63.81 1.15
28.2	8.16 − .15	44.81 − .12	37.84 − 1.72	16.17 − 1.00	59.45 − .24	52.42 − .13	38.20 − .93	64.97 + 1.16

APPARENT RIGHT ASCENSIONS AND APPROXIMATE NORTH POLAR DISTANCES, FOR TRANSIT AT WASHINGTON.

Mean Solar Date.	33 Bootis.	47 Cephei, S. P.	γ Scorpii.	δ Bootis.	ρ Octantis.	β Cor. Bor.	γ Camelop., S. P.	δ¹ Apodis.
	43° 6′	348° 57′	114° 50′	56° 15′	174° 4′	60° 30′	340° 58′	168° 24′
	h m 14 34	h m 14 50	h m 14 57	h m 15 10	h m 15 16	h m 15 23	h m 15 38	h m 16 3
	s	s	s	s	s	s	s	s
Mar. 30.6	33.22 + .19	41.95 − .50	19.66 + .19	51.52 + .19	61.18 +1.73	4.69 + .20	8.19 − .42	11.76 +1.09
Apr. 9.6	33.39 .14	41.55 .31	19.84 .17	51.70 .17	62.76 1.43	4.88 .18	7.84 .28	12.78 .95
19.5	33.50 .09	41.33 − .11	20.00 .15	51.86 .14	64.04 1.13	5.04 .15	7.62 .15	13.66 .81
29.5	33.57 + .05	41.34 + .12	20.14 .12	51.97 .09	65.02 .82	5.17 .11	7.53 − .03	14.39 .66
May 9.5	33.60 .00	41.56 .33	20.23 .08	52.04 .06	65.68 .50	5.26 .07	7.56 + .10	14.98 .52
19.5	33.58 − .05	42.01 + .55	20.29 + .05	52.09 + .03	66.01 + .16	5.31 + .04	7.72 + .23	15.42 + .34
29.4	33.51 .09	42.66 .74	20.33 + .02	52.09 − .01	66.01 − .17	5.33 .00	8.01 .35	15.67 + .17
June 8.4	33.40 .12	43.48 .89	20.33 − .02	52.06 .05	65.67 .51	5.31 − .03	8.42 .47	15.76 .00
18.4	33.28 .15	44.43 1.03	20.30 .04	51.99 .09	65.00 .81	5.27 .07	8.95 .56	15.66 − .19
28.4	33.11 .18	45.53 1.15	20.24 .07	51.89 .12	64.05 1.11	5.18 .10	9.54 .64	15.38 .37
July 8.3	32.92 − .21	46.72 +1.23	20.16 − .11	51.76 − .15	62.78 −1.38	5.07 − .12	10.23 + .71	14.93 − .51
18.3	32.69 .23	47.97 1.26	20.05 .13	51.60 .17	61.29 1.61	4.94 .15	10.96 .75	14.37 .65
28.3	32.46 .24	49.24 1.27	19.92 .14	51.43 .19	59.56 1.79	4.78 .17	11.72 .78	13.64 .78
Aug. 7.2	32.21 .25	50.53 1.27	19.76 .16	51.22 .21	57.71 1.89	4.60 .19	12.52 .80	12.81 .88
17.2	31.96 .25	51.79 1.25	19.60 .17	51.02 .21	55.79 1.93	4.40 .20	13.31 .79	11.89 .94
27.2	31.72 − .24	53.02 +1.22	19.42 − .17	50.81 − .20	53.85 −1.94	4.21 − .19	14.10 + .78	10.94 − .96

Mean Solar Date.	φ Herculis.	σ Cor. Bor. (*mean.*)	γ Apodis.	η Urs. Min.	η Ophiuchi.	π Herculis.	θ Ophinchi.	δ Aræ.
	44° 46′	55° 51′	168° 38′	13° 59′	105° 35′	53° 4′	114° 53′	150° 35′
	h m 16 5	h m 16 10	h m 16 15	h m 16 20	h m 17 3	h m 17 11	h m 17 14	h m 17 20
	s	s	s	s	s	s	s	s
Apr. 9.6	8.64 + .24	21.93 + .21	51.06 +1.00	56.61 + .69	45.72 + .27	2.09 + .28	55.44 + .31	41.58 + .53
19.6	8.86 .20	22.13 .19	52 00 .88	57.17 .50	45.98 .25	2.36 .26	55.73 .27	42.08 .47
29.6	9.04 .16	22.30 .16	52.82 .74	57.60 .36	46.21 .22	2.60 .22	55.98 .24	42.52 .43
May 9.6	9.18 .12	22.44 .13	53.47 .57	57.89 .21	46.42 .19	2.79 .18	56.21 .22	42.94 .39
19.5	9.28 .07	22.55 .08	53.97 .42	58.01 + .04	46.59 .16	2.96 .15	56.41 .19	43.29 .32
29.5	9.32 + .02	22.60 + .04	54.30 + .24	57.98 − .10	46.74 + .14	3.09 + .11	56.59 + .16	43.58 + .26
June 8.5	9.32 − .03	22.63 + .02	54.44 + .04	57.80 .25	46.86 .10	3.17 .07	56.73 .13	43.81 .20
18.5	9.27 .08	22.62 − .02	54.39 − .14	57.48 .39	46.94 .07	3.22 + .03	56.84 .08	43.97 .12
28.4	9.17 .12	22.57 .07	54.17 .31	57.01 .53	46.99 + .03	3.23 − .02	56.89 + .04	44.05 + .04
July 8.4	9.03 .16	22.47 .12	53.77 .48	56.42 .65	46.99 − .01	3.18 .07	56.92 .00	44.05 − .04
18.4	8.86 − .20	22.34 − .15	53.21 − .64	55.71 − .75	46.95 − .05	3.09 − .11	56.89 − .05	43.98 − .11
28.3	8.64 .23	22.18 .18	52.50 .78	54.93 .82	46.88 .09	2.96 .16	56.83 .09	43.83 .19
Aug. 7.3	8.40 .25	21.99 .20	51.67 .88	54.07 .88	46.78 .12	2.78 .20	56.71 .13	43.60 .25
17.3	8.15 .27	21.79 .22	50.75 .95	53.16 .93	46.65 .15	2.57 .22	56.57 .15	43.33 .31
27.3	7.86 .28	21.55 .23	49.78 .99	52.21 .95	46.49 .17	2.34 .24	56.41 .17	42.98 .36
Sept. 6.2	7.58 − .28	21.32 − .23	48.77 −1.00	51.26 − .95	46.32 − .18	2.10 − .25	56.23 − .19	42.61 − .37
16.2	7.30 .27	21.09 .23	47.79 .96	50.31 .92	46.13 .18	1.85 .25	56.03 .20	42.24 .38
26.2	7.04 .25	20.86 .23	46.87 .88	49.43 .85	45.95 .17	1.60 .24	55.84 .19	41.85 .37
Oct. 6.2	6.81 − .22	20.62 − .22	46.05 − .76	48.61 − .78	45.80 − .14	1.37 − .23	55.66 − .18	41.50 − .34

APPARENT RIGHT ASCENSIONS AND APPROXIMATE NORTH POLAR DISTANCES, FOR TRANSIT AT WASHINGTON.

Mean Solar Date.	Groombr. 944, S.P.	ι Herculis.	θ Herculis.	ο Herculis.	λ Sagittarii.	χ Draconis.	ζ Pavonis.	γ Lyræ.
	355° 8′	43° 56′	52° 44′	61° 15′	115° 29′	17° 19′	161° 31′	57° 28′
	h m 17 24	h m 17 36	h m 17 52	h m 18 3	h m 18 20	h m 18 23	h m 18 29	h m 18 54
	s	s	s	s	s	s	s	s
May 19.6	51.96 − .48	14.06 + .18	18.98 + .19	3.56 + .18	51.74 + .22	12.18 + .42	35.14 + .62	38.65 + .25
29.6	51.70 − .04	14.22 .14	19.15 .15	3.73 .16	51.96 .21	12.54 .30	35.72 .54	38.88 .21
June 8.6	51.88 + .41	14.34 .09	19.28 .11	3.88 .13	52.17 .19	12.78 .18	36.23 .45	39.07 .18
18.5	52.55 .89	14.39 + .04	19.37 .07	3.99 .09	52.34 .15	12.91 + .06	36.61 .32	39.24 .14
28.5	53.63 1.29	14.41 − .01	19.41 + .03	4.05 + .05	52.47 .11	12.91 − .06	36.89 .21	39.35 .09
July 8.5	55.14 +1.70	14.36 − .08	19.42 − .02	4.08 .00	52.55 + .06	12.78 − .20	37.03 + .08	39.42 + .05
18.5	57.02 2.03	14.26 .13	19.36 .08	4.06 − .05	52.58 + .01	12.52 .39	37.06 − .03	39.45 .00
28.4	59.18 2.31	14.11 .17	19.26 .13	3.99 .09	52.57 − .03	12.16 .42	36.96 .16	39.42 − .06
Aug. 7.4	61.65 2.58	13.92 .22	19.11 .16	3.88 .13	52.52 .08	11.67 .54	36.74 .28	39.34 .10
17.4	64.31 2.76	13.68 .25	18.94 .19	3.73 .17	52.41 .12	11.10 .61	36.40 .39	39.23 .14
27.3	67.16 +2.91	13.42 − .28	18.73 − .23	3.55 − .19	52.28 − .15	10.45 − .69	35.95 − .49	39.07 − .17
Sept. 6.3	70.12 2.99	13.13 .30	18.49 .25	3.35 .21	52.11 .17	9.73 .74	35.44 .55	38.89 .20
16.3	73.13 3.00	12.83 .31	18.24 .26	3.13 .22	51.93 .19	8.97 .78	34.85 .61	38.66 .22
26.3	76.12 2.97	12.52 .30	17.98 .26	2.90 .23	51.73 .20	8.18 .80	34.24 .62	38.44 .23
Oct. 6.2	79.07 2.90	12.23 .28	17.72 .25	2.67 .22	51.53 .19	7.38 .79	33.62 .61	38.20 .23
16.2	81.91 +2.76	11.96 − .26	17.47 − .24	2.46 − .22	51.34 − .19	6.60 − .77	33.03 − .57	37.97 − .22

Mean Solar Date.	ι Lyræ.	25 Camelop. S. P.	θ Lyræ.	β Cygni.	β Sagittæ.	δ Cygni.	Groombr. 1374, S.P.	ε Pavonis.
	54° 5′	352° 38′	52° 4′	62° 17′	72° 48′	45° 9′	344° 14′	163° 13′
	h m 19 3	h m 19 6	h m 19 12	h m 19 26	h m 19 35	h m 19 41	h m 19 46	h m 19 47
	s	s	s	s	s	s	s	s
May 29.6	12.38 + .21	33.75 − .68	23.07 + .24	5.14 + .24	52.85 + .25	23.58 + .28	16.65 − .39	15.91 + .75
June 8.6	12.60 .19	33.21 .40	23.29 .20	5.37 .21	53.08 .21	23.84 .24	16.32 .27	16.62 .67
18.6	12.76 .15	32.95 − .11	23.47 .16	5.56 .18	53.27 .18	24.06 .20	16.12 .14	17.25 .57
28.5	12.89 .10	32.99 + .18	23.60 .11	5.72 .13	53.45 .15	24.23 .15	16.04 − .01	17.76 .45
July 8.5	12.96 + .05	33.31 .46	23.68 .06	5.82 .08	53.57 .11	24.35 .09	16.10 + .13	18.14 .32
18.5	12.98 .00	33.91 + .74	23.72 + .02	5.88 + .04	53.64 + .06	24.41 + .03	16.28 + .24	18.40 + .19
28.5	12.96 − .05	34.79 1.00	23.71 − .04	5.89 − .01	53.68 + .02	24.41 − .03	16.59 .38	18.52 + .05
Aug. 7.4	12.89 .10	35.88 1.20	23.64 .10	5.86 .06	53.67 − .03	24.36 .08	17.03 .49	18.51 − .08
17.4	12.77 .14	37.19 1.42	23.52 .14	5.78 .10	53.62 .08	24.25 .13	17.56 .58	18.34 .21
27.4	12.62 .18	38.71 1.62	23.37 .18	5.66 .14	53.53 .11	24.10 .18	18.18 .68	18.07 .33
Sept. 6.3	12.42 − .21	40.41 +1.76	23.17 − .21	5.50 − .17	53.40 − .14	23.89 − .22	18.92 + .78	17.67 − .46
16.3	12.20 .23	42.22 1.86	22.94 .24	5.32 .20	53.24 .17	23.65 .25	19.73 .84	17.15 .56
26.3	11.95 .24	44.12 1.95	22.69 .26	5.11 .22	53.07 .18	23.40 .27	20.60 .90	16.56 .62
Oct. 6.3	11.71 .25	46.11 2.02	22.43 .26	4.89 .22	52.88 .19	23.11 .28	21.52 .94	15.91 .66
16.2	11.46 .24	48.14 2.01	22.18 .25	4.67 .21	52.68 .20	22.83 .29	22.48 .96	15.24 .67
26.2	11.22 − .22	50.14 +1.97	21.93 − .24	4.48 − .20	52.49 − .18	22.54 − .29	23.43 + .96	14.57 − .66
Nov. 5.2	11.02 − .19	52.07 +1.92	21.71 − .21	4.28 − .19	52.33 − .15	22.26 − .28	24.40 + .97	13.93 − .62

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APPARENT RIGHT ASCENSIONS AND APPROXIMATE NORTH POLAR DISTANCES, FOR TRANSIT AT WASHINGTON.

Mean Solar Date.	γ Sagittæ.	σ Sagittarii.	θ Aquilæ.	o^1 Cygni.	α Delphini.	β Pavonis.	ψ Capricor.	ε Cygni.
	70° 49′	118° 2′	91° 10′	43° 37′	74° 30′	156° 37′	115° 41′	56° 28′
	h m 19 53	h m 19 55	h m 20 5	h m 20 9	h m 20 34	h m 20 34	h m 20 39	h m 20 41
	s	s	s	s	s	s	s	s
June 18.6	38.83 + .20	34.72 + .26	22.09 + .19	61.84 + .22	17.84 + .24	34.50 + .54	16.50 + .26	33.96 + .25
28.6	39.01 .16	34.95 .20	22.27 .18	62.04 .18	18.03 .20	34.99 .44	16.75 .24	34.19 .21
July 8.5	39.15 .12	35.11 .15	22.44 .15	62.20 .14	18.20 .16	35.38 .35	16.97 .20	34.37 .17
18.5	39.25 .07	35.25 .11	22.56 .10	62.31 + .07	18.34 .12	35.69 .26	17.14 .15	34.52 .12
28.5	39.29 + .03	35.33 + .06	22.63 .05	62.35 .00	18.43 .07	35.90 .16	17.27 .10	34.61 .06
Aug. 7.5	39.30 − .01	35.37 .00	22.66 + .01	62.32 − .05	18.47 + .03	36.01 + .05	17.34 + .05	34.64 + .01
17.4	39.27 .06	35.34 − .05	22.65 − .03	62.23 .10	18.48 − .02	36.00 − .06	17.37 .00	34.64 − .03
27.4	39.18 .11	35.28 .09	22.60 .08	62.11 .15	18.44 .07	35.90 .15	17.35 − .04	34.59 .08
Sept. 6.4	39.06 .13	35.17 .13	22.50 .11	61.94 .20	18.35 .10	35.69 .25	17.29 .08	34.49 .12
16.4	38.92 .16	35.03 .16	22.38 .14	61.71 .24	18.25 .13	35.40 .33	17.18 .12	34.35 .16
26.3	38.74 − .18	34.85 − .18	22.23 − .16	61.46 − .26	18.10 − .16	35.03 − .40	17.04 − .16	34.18 − .18
Oct. 6.3	38.56 .19	34.67 .19	22.07 .17	61.19 .28	17.94 .17	34.60 .45	16.87 .18	33.99 .21
16.3	38.37 .20	34.47 .20	21.90 .17	60.90 .29	17.77 .18	34.14 .48	16.69 .19	33.78 .22
26.2	38.17 .19	34.28 .19	21.73 .17	60.62 .29	17.59 .17	33.65 .48	16.50 .19	33.56 .21
Nov. 5.2	37.99 .17	34.10 .17	21.56 .16	60.33 .28	17.42 .16	33.18 .46	16.32 .18	33.35 .20
15.2	37.83 − .14	33.95 − .14	21.42 − .13	60.07 − .26	17.26 − .15	32.73 − .43	16.15 − .17	33.15 − .19
25.2	37.72 − .09	33.82 − .11	21.31 − .10	59.82 − .24	17.12 − .13	32.32 − .38	15.99 − .15	32.96 − .18

Mean Solar Date.	τ Cygni.	ζ Capricor.	74 Cygni.	λ^1 Octantis.	ζ Chamæleontis, S.P.	π^2 Cygni.	16 Pegasi.	π Pegasi.
	52° 27′	112° 55′	50° 6′	173° 15′	189° 35′	41° 14′	64° 37′	57° 13′
	h m 21 10	h m 21 20	h m 21 32	h m 21 33	h m 21 37.	h m 21 42	h m 21 47	h m 22 4
	s	s	s	s	s	s	s	s
July 8.6	13.02 + .19	5.77 + .21	21.37 + .22	10.63 +1.32	11.28 − .82	34.09 + .26	50.20 + .22	53.38 + .25
18.6	13.19 .15	5.97 .19	21.57 .18	11.84 1.08	10.56 .66	34.32 .20	50.40 .18	53.61 .20
28.5	13.31 .10	6.14 .15	21.72 .13	12.78 .80	10.00 .46	34.48 .14	50.56 .14	53.78 .16
Aug. 7.5	13.39 + .05	6.26 .09	21.81 .07	13.41 .46	9.70 .23	34.60 .08	50.68 .10	53.93 .12
17.5	13.41 .00	6.32 + .04	21.86 + .02	13.70 + .12	9.58 − .04	34.64 + .02	50.75 + .05	54.02 .07
27.5	13.38 − .06	6.34 .00	21.86 − .03	13.66 − .21	9.67 + .20	34.64 − .02	50.78 .00	54.06 + .02
Sept. 6.4	13.29 .10	6.32 − .04	21.81 .08	13.28 .55	10.04 .47	34.60 .08	50.76 − .04	54.05 − .03
16.4	13.18 .14	6.26 .09	21.70 .13	12.56 .88	10.62 .65	34.48 .14	50.71 .08	54.01 .07
26.4	13.02 .17	6.13 .13	21.56 .16	11.55 1.15	11.38 .84	34.32 .19	50.61 .12	53.92 .11
Oct. 6.4	12.84 .20	6.00 .15	21.39 .19	10.27 1.40	12.37 1.05	34.10 .22	50.48 .13	53.80 .14
16.3	12.62 − .21	5.85 − .16	21.19 − .21	8.76 −1.58	13.53 +1.19	33.88 − .23	50.35 − .15	53.65 − .16
26.3	12.41 .22	5.68 .17	20.97 .23	7.12 1.69	14.81 1.29	33.64 .25	50.18 .17	53.49 .17
Nov. 5.3	12.19 .22	5.51 .17	20.75 .22	5.38 1.75	16.15 1.35	33.37 .27	50.01 .18	53.31 .18
15.2	11.97 .21	5.35 .16	20.53 .21	3.63 1.74	17.55 1.37	33.10 .27	49.83 .17	53.13 .19
25.2	11.78 .19	5.20 .14	20.33 .21	1.91 1.66	18.91 1.32	32.83 .26	49.67 .15	52.94 .18
Dec. 5.2	11.59 − .18	5.07 − .12	20.12 − .20	0.32 −1.52	20.23 +1.26	32.58 − .24	49.53 − .13	52.77 − .16

APPARENT RIGHT ASCENSIONS AND APPROXIMATE NORTH POLAR DISTANCES, FOR TRANSIT AT WASHINGTON.

Mean Solar Date.	υ Octantis.	γ Aquarii.	σ Aquarii.	α Lacertæ.	10 Lacertæ.	β Octantis.	λ Pegasi.	Groombr. 1706, S.P.
	176° 33′	91° 58′	101° 16′	340° 19′	51° 33′	171° 59′	67° 3′	348° 23′
	h m 22 9	h m 22 15	h m 22 24	h m 22 26	h m 22 34	h m 22 34	h m 22 40	h m 22 50
	s	s	s	s	s	s	s	s
July 8.6	20.24 +2.72	42.76 + .25	33.23 + .26	34.38 + .31	6.67 + .28	13.46 +1.36	59.62 + .26	35.16 − .68
18.6	22.80 2.38	42.99 .21	33.47 .22	34.67 .27	6.93 .24	14.75 1.21	59.87 .24	34.55 .54
28.6	24.98 1.92	43.17 .17	33.67 .19	34.91 .21	7.15 .20	15.87 1.00	60.09 .20	34.08 .40
Aug. 7.5	26.60 1.34	43.32 .14	33.84 .15	35.08 .15	7.33 .16	16.75 .76	60.26 .15	33.74 .28
17.5	27.65 .74	43.44 .09	33.96 .10	35.20 .09	7.46 .10	17.38 .50	60.39 .11	33.52 − .14
27.5	28.04 + .06	43.50 + .04	34.03 + .06	35.26 + .04	7.53 + .05	17.74 + .22	60.48 + .07	33.46 + .01
Sept. 6.5	27.77 − .60	43.52 .00	34.07 + .02	35.28 − .01	7.56 .00	17.82 − .07	60.52 + .02	33.54 .17
16.4	26.84 1.23	43.51 − .03	34.07 − .02	35.24 .07	7.54 − .04	17.60 .36	60.52 − .02	33.80 .34
26.4	25.32 1.82	43.46 .07	34.03 .07	35.13 .12	7.48 .09	17.09 .63	60.48 .05	34.21 .48
Oct. 6.4	23.19 2.40	43.37 .10	33.94 .09	35.00 .16	7.37 .12	16.34 .89	60.42 .09	34.77 .62
16.4	20.55 −2.84	43.27 − .11	33.85 − .11	34.81 − .20	7.24 − .14	15.33 −1.08	60.31 − .12	35.45 + .76
26.3	17.53 3.18	43.15 .13	33.72 .13	34.60 .23	7.09 .16	14.15 1.27	60.19 .13	36.30 .90
Nov. 5.3	14.20 3.42	43.01 .14	33.59 .14	34.36 .25	6.92 .18	12.81 1.39	60.05 .14	37.25 1.01
15.3	10.72 3.50	42.87 .14	33.45 .14	34.10 .26	6.72 .20	11.37 1.46	59.92 .15	38.31 1.11
25.3	7.22 3.48	42.74 .13	33.31 .14	33.84 .26	6.53 .20	9.89 1.47	59.76 .16	39.47 1.18
Dec. 5.2	3.80 −3.32	42.61 − .12	33.18 − .13	33.58 − .25	6.33 − .20	8.44 −1.42	59.61 − .15	40.67 +1.21
15.2	0.63 −3.00	42.50 − .10	33.05 − .12	33.33 − .24	6.13 − .19	7.05 −1.35	59.47 − .13	41.89 +1.22

Mean Solar Date.	o Androm.	ϕ Aquarii.	τ Pegasi.	λ Androm.	i^1 Aquarii.	δ Sculptoris.	γ^1 Octantis.	33 Piscium.
	48° 18′	96° 40′	66° 54′	44° 10′	108° 55′	118° 46′	172° 40′	96° 21′
	h m 22 56	h m 23 8	h m 23 14	h m 23 31	h m 23 38	h m 23 42	h m 23 45	h m 23 59
	s	s	s	s	s	s	s	s
July 28.6	38.91 + .22	22.01 + .20	57.13 + .20	57.26 + .28	13.98 + .26	55.80 + .27	19.45 +1.36	26.74 + .24
Aug. 7.6	39.11 .18	22.20 .18	57.32 .18	57.52 .24	14.22 .21	56.05 .23	20.74 1.21	26.97 .22
17.6	39.27 .14	22.36 .14	57.49 .15	57.73 .18	14.40 .17	56.25 .19	21.86 1.00	27.17 .18
27.5	39.38 .09	22.48 .10	57.61 .10	57.88 .13	14.56 .13	56.42 .15	22.71 .71	27.33 .15
Sept. 6.5	39.44 + .03	22.55 .06	57.68 .06	57.99 .09	14.67 .09	56.55 .10	23.28 .41	27.46 .11
16.5	39.46 − .01	22.59 + .02	57.72 + .03	58.05 + .04	14.74 + .05	56.62 + .05	23.53 + .11	27.55 + .07
26.4	39.42 .05	22.59 − .02	57.73 − .01	58.06 − .01	14.77 + .01	56.65 + .01	23.50 − .20	27.60 + .03
Oct. 6.4	39.33 .10	22.56 .05	57.69 .05	58.03 .06	14.76 − .03	56.65 − .03	23.12 .52	27.61 .00
16.4	39.21 .13	22.50 .08	57.63 .08	57.95 .10	14.72 .06	56.59 .07	22.46 .80	27.59 − .03
26.4	39.07 .16	22.40 .11	57.53 .11	57.84 .13	14.64 .09	56.50 .10	21.52 1.06	27.55 .06
Nov. 5.3	38.90 − .18	22.29 − .12	57.42 − .12	57.69 − .16	14.54 − .11	56.39 − .12	20.34 −1.29	27.47 − .09
15.3	38.71 .19	22.17 .12	57.29 .13	57.53 .18	14.43 .12	56.27 .13	18.95 1.46	27.38 .10
25.3	38.52 .20	22.05 .13	57.15 .14	57.33 .20	14.30 .13	56.13 .14	17.44 1.56	27.28 .11
Dec. 5.3	38.31 .21	21.92 .13	57.01 .14	57.13 .21	14.17 .13	55.98 .15	15.84 1.62	27.17 .12
15.2	38.11 .20	21.80 .12	56.88 .13	56.91 .22	14.04 .13	55.83 .15	14.20 1.63	27.05 .12
25.2	37.92 − .20	21.69 − .10	56.74 − .13	56.69 − .21	13.91 − .13	55.68 − .14	12.58 −1.58	26.93 − .12
35.2	37.72 − .19	21.61 − .07	56.61 − .12	56.48 − .20	13.78 − .13	55.54 − .13	11.06 −1.45	26.81 − .11